ELECTRONICALLY RECORDED 2021160085
Williamson County, Texas Total Pages: 10

After Recording Return to:
AR REDDY SPRING CREEK LLC
6253 Corvara Court
Frisco, Texas 75035
Attention: Raju Padigala

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

SPECIAL WARRANTY DEED
(WITH VENDOR'S LIEN)

STATE OF TEXAS §
§
COUNTY OF WILLIAMSON §

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, **VESTMONT LH 35 PARTNERS, LTD.**, a Texas limited partnership ("Grantor"), for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration to Grantor, in hand paid by **AR REDDY SPRING CREEK, LLC,** a Texas limited liability company ("Grantee"), and further in consideration of a loan from **SOUTHWESTERN NATIONAL BANK** ("Lender"), whose address is 6901 Corporate Drive, Houston, Texas 77036, at the special insistence and request of the Grantee as the funds advanced in execution of that one certain Promissory Note of even date herewith ("Note"), in the principal sum of TWO MILLION TWO HUNDRED TWENTY NINE THOUSAND and 00/100 Dollars ($2,229,000.00), bearing interest and payable to the order of Lender, as therein stipulated, which Note is secured by a Vendor's Lien herein retained, and which the Note in its entirety is secured by a Deed of Trust of even date herewith executed and delivered by the Grantee to **MARK SIMMONS, TRUSTEE**, whose address is 6901 Corporate Drive, Houston, Texas 77036, the receipt and sufficiency of which is hereby acknowledged by Grantor;

Has GRANTED, SOLD AND CONVEYED, and by these presents does hereby GRANT, SELL AND CONVEY unto Grantee two tracts of land, situated in Williamson County, Texas, being more particularly described in **EXHIBIT A**, attached hereto and made a part hereof for all purposes, (the "Land"), TOGETHER WITH, all and singular, Grantors' right, title and interest, if any, in and to the following but without any kind of warranties or representations (expressed, implied, or statutory) and without recourse: (i) the rights, benefits, privileges, easements, hereditaments, appurtenances, buildings, other improvements and interests located thereon or in anywise appertaining thereto, (ii) strips or gores, if any, between the Land and abutting or immediately adjacent properties, and (iii) any land lying in or under the bed of any street, alley, road or right-of-way, opened or proposed, abutting or immediately adjacent to the Land (collectively, the "Property"). unto Grantee, the following described real property ("Lot", whether one or more) situated in Williamson County, Texas, to wit:

This conveyance is made by the Grantor and accepted by the Grantee subject to the validly existing and enforceable rights, interests and estates of third parties pursuant to the items described in **EXHIBIT B** attached hereto and made part hereof for all purposes.

TO HAVE AND TO HOLD the above described premises, together with all and singular the rights and appurtenances thereof in anywise belonging unto Grantee, its successors and assigns forever, and

Grantor does hereby bind itself, its successors and assigns to WARRANT AND FOREVER DEFEND, all and singular such premises unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, though, or under the Grantor, but not otherwise. Whenever used, the singular number shall include the plural, and the plural the singular.

But it is expressly agreed and stipulated that a Vendor's Lien is retained against the Lot until the Note, and all interest thereon are fully paid according to its face and tenor, effect and reading, when this deed shall become absolute, and the Grantor does hereby transfer, assign and convey unto Lender, without recourse on Grantor, said Vendor's Lien and all rights, titles, liens and equities in, to and upon the Lot.

GRANTEE AGREES TO ACCEPT THE PROPERTY ON AN "AS IS" AND "WHERE IS" BASIS, WITH ALL FAULTS, AND WITHOUT ANY REPRESENTATIONS OR WARRANTY, ALL OF WHICH GRANTORS HEREBY DISCLAIM. NO REPRESENTATION OR WARRANTY IS MADE BY GRANTORS WITH RESPECT TO (I) THE VALUE, FINANCIAL CONDITION OF, THE REVENUES AND EXPENSES GENERATED BY, OR ASSOCIATED WITH, THE PROPERTY OR OTHERWISE RELATING TO THE PROPERTY, (II) MATTERS OF TITLE, EXCEPT AS PROVIDED HEREIN, (III) ENVIRONMENTAL MATTERS RELATING TO THE PROPERTY OR ANY PORTION THEREOF, (IV) GEOLOGICAL CONDITIONS, INCLUDING, WITHOUT LIMITATION, SUBSIDENCE, SUBSURFACE CONDITIONS, WATER TABLE, UNDERGROUND WATER RESERVOIRS, LIMITATIONS REGARDING THE WITHDRAWAL OF WATER AND EARTHQUAKE FAULTS AND THE RESULTING DAMAGE OF PAST AND/OR FUTURE EARTHQUAKES, (V) WHETHER, AND TO THE EXTENT TO WHICH, THE PROPERTY OR ANY PORTION THEREOF IS AFFECTED BY ANY STREAM (SURFACE OR UNDERGROUND), BODY OF WATER, FLOOD PRONE AREA, FLOOD PLAIN, FLOODWAY OR SPECIAL FLOOD HAZARD, (VI) DRAINAGE, (VII) SOIL CONDITIONS, INCLUDING THE EXISTENCE OF INSTABILITY, PAST SOIL REPAIRS, SOIL ADDITIONS OR CONDITIONS OF SOIL FILL, OR SUSCEPTIBILITY TO LANDSLIDES, OR THE SUFFICIENCY OF ANY UNDERSHORING, (VIII) THE AVAILABILITY OF ANY UTILITIES TO THE PROPERTY OR ANY PORTION THEREOF INCLUDING, WITHOUT LIMITATION, WATER, SEWAGE, GAS AND ELECTRIC, (IX) THE USAGES OF ADJOINING PROPERTY, (X) ACCESS TO THE PROPERTY OR ANY PORTION THEREOF, (XI) THE SIZE, LOCATION, AGE, USE, DESIGN, QUALITY, DESCRIPTION, SUITABILITY, STRUCTURAL INTEGRITY, OPERATION, OR PHYSICAL CONDITION OF THE PROPERTY OR ANY PORTION THEREOF, (XII) ANY LIENS, ENCUMBRANCES, RIGHTS OR CLAIMS ON OR AFFECTING OR PERTAINING TO THE PROPERTY OR ANY PART THEREOF, (XIII) THE COMPLIANCE OF THE PROPERTY WITH ENVIRONMENTAL LAWS, OR THE PRESENCE OF HAZARDOUS SUBSTANCES IN OR ON, UNDER OR IN THE VICINITY OF THE PROPERTY, (XIV) THE CONDITION OR USE OF THE PROPERTY OR COMPLIANCE OF THE PROPERTY WITH ANY OR ALL PAST, PRESENT OR FUTURE FEDERAL, STATE OR LOCAL ORDINANCES, RULES, REGULATIONS OR LAWS, BUILDING, FIRE OR ZONING ORDINANCES, CODES OR OTHER SIMILAR LAWS, REGULATIONS AND RULES APPLICABLE TO THE PROPERTY, OR THE COMPLIANCE BY THE PROPERTY THEREWITH, (XV) THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND STORAGE TANKS IN, AT, ABOUT OR UNDER THE PROPERTY, (XVI) ANY OTHER MATTER AFFECTING THE STABILITY OR INTEGRITY OF THE PROPERTY, (XVII) THE POTENTIAL FOR FURTHER DEVELOPMENT OF THE PROPERTY, (XVIII) THE EXISTENCE OF VESTED LAND USE, ZONING OR BUILDING ENTITLEMENTS AFFECTING THE PROPERTY, (XIX) THE MERCHANTABILITY OF THE PROPERTY OR FITNESS OF THE PROPERTY FOR ANY PARTICULAR PURPOSE (GRANTEE AFFIRMING THAT GRANTEE HAS NOT RELIED ON GRANTORS' SKILL OR JUDGMENT TO SELECT OR FURNISH THE PROPERTY FOR ANY PARTICULAR PURPOSE, AND THAT GRANTORS MAKE NO WARRANTY THAT THE PROPERTY IS FIT FOR ANY PARTICULAR PURPOSE) OR (XX) TAX CONSEQUENCES. GRANTEE HEREBY ACKNOWLEDGES THAT GRANTEE HAS NOT RELIED UPON, AND WILL

NOT RELY UPON, EITHER DIRECTLY OR INDIRECTLY, ANY INFORMATION, REPRESENTATION OR WARRANTY OF GRANTORS (EXCEPT AS TO TITLE), AND FURTHER ACKNOWLEDGES THAT NO SUCH REPRESENTATIONS OR WARRANTIES HAVE BEEN MADE. GRANTEE REPRESENTS THAT IT IS A KNOWLEDGEABLE, EXPERIENCED AND SOPHISTICATED GRANTEE OF REAL ESTATE, AND THAT IT IS RELYING SOLELY ON ITS OWN EXPERTISE AND THAT OF GRANTEE'S CONSULTANTS IN PURCHASING THE PROPERTY. GRANTEE HAS RELIED SOLELY ON ITS OWN INDEPENDENT INVESTIGATION AND INSPECTION OF THE PROPERTY, AND HAS CONDUCTED SUCH INSPECTIONS AND INVESTIGATIONS OF THE PROPERTY AS GRANTEE DEEMED NECESSARY. GRANTEE HEREBY ASSUMES THE RISK THAT ADVERSE MATTERS, INCLUDING, BUT NOT LIMITED TO, ADVERSE PHYSICAL AND ENVIRONMENTAL CONDITIONS, MAY NOT HAVE BEEN REVEALED BY GRANTEE'S INSPECTIONS AND INVESTIGATIONS, AND GRANTEE HEREBY RELEASES GRANTORS FROM ALL LIABILITY IN CONNECTION WITH THE SAME. GRANTEE FURTHER ACKNOWLEDGES AND AGREES THAT THERE ARE NO ORAL AGREEMENTS, WARRANTIES OR REPRESENTATIONS, COLLATERAL TO OR AFFECTING THE PROPERTY BY GRANTORS OR ANY PERSON ACTING ON BEHALF OF GRANTORS OR ANY PERSON OR ENTITY WHICH PREPARED OR PROVIDED ANY OF THE MATERIALS REVIEWED BY GRANTEE. GRANTORS ARE NOT LIABLE OR BOUND IN ANY MANNER BY ANY ORAL OR WRITTEN STATEMENTS, REPRESENTATIONS, OR INFORMATION PERTAINING TO THE PROPERTY FURNISHED BY ANY REAL ESTATE BROKER, AGENT, EMPLOYEE, SERVANT OR OTHER PERSON, UNLESS THE SAME ARE SPECIFICALLY SET FORTH OR REFERRED TO HEREIN. GRANTEE ACKNOWLEDGES THAT THE CONSIDERATION PAID BY THE GRANTEE FOR THE PROPERTY REFLECTS THE "AS-IS" NATURE OF THIS SALE AND ANY FAULTS, LIABILITIES, DEFECTS OR OTHER ADVERSE MATTERS THAT MAY BE ASSOCIATED WITH THE PROPERTY. GRANTEE HAS FULLY REVIEWED THE DISCLAIMERS AND WAIVERS SET FORTH IN THIS DEED WITH ITS COUNSEL AND UNDERSTANDS THE SIGNIFICANCE AND EFFECT THEREOF.

All general real estate taxes, annual installments of special assessments and other state or city taxes or other assessments affecting the Property ("Real Estate Taxes") for the 2021 calendar year have been prorated between Grantors and Grantee as of the date hereof. Grantee, by its acceptance of this Special Warranty Deed, assumes payment of all such Real Estate Taxes for the 2021 calendar year and later calendar years not yet due and payable, each to the extent attributable to all or part of the Property. Grantee additionally assumes responsibility and payment for all ad valorem taxes assessed to the Property for years prior to the date hereof resulting from a change in use of the Property, occurring before or after the date hereof.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

EXECUTED this 23rd day of September, 2021.

GRANTOR:

VESTMONT LH 35 PARTNERS, LTD.,
a Texas limited partnership

By: Vestmont Investments 1, LLC,
a Texas limited liability company

By: _____
Jeremy Steenerson, Manager

ACKNOWLEDGMENT

STATE OF TEXAS §
COUNTY OF ~~WILLIAMSON~~ Collin §

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Jeremy Steenerson, the Manager of Vestmont Investments 1, LLC, the general partner of VESTMONT LH 35 PARTNERS, LTD., a Texas limited partnership, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same as the act and deed of said entity, for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this 23 day of September, 2021.

SO HEE LIM
Notary Public, State of Texas
Comm. Expires 03-17-2024
Notary ID 130586837

_____
NOTARY PUBLIC, STATE OF TEXAS
Printed Name: _____
My Commission Expires: _____

EXHIBIT "A"

LEGAL DESCRIPTIONS

TRACT ONE:

BEING a tract of land out of the John B. Robinson Survey, Abstract Number 521, in Williamson County, Texas, and being a portion of those two tracts of land described by deeds to Vestmont LH 35 Partners, Ltd. as recorded under Instrument Number 2019086110 and Instrument Number 2019086149, Official Public Records of Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83)):

BEGINNING at a 1/2 inch rebar with cap stamped, "SAM-INC." found for the southwest corner of said Vestmont tract (2019086149), same being the southwest corner of the herein described tract, and being the beginning of a curve to the right having a radius of 19800.00 feet, with a delta angle of 01 degrees 53 minutes 35 seconds, whose chord bears North 24 degrees 15 minutes 35 seconds West, a distance of 654.20 feet;

THENCE with the west line of said Vestmont tract (2019086149), and along said curve to the right, passing at an arc length of 468.08 feet a brass monument found for the northwest corner thereof, same being the southwest corner of said Vestmont tract (2019086110), and continuing for a total arc length of 654.22 feet to a brass monument found for the westernmost northwest corner of said Vestmont tract (2019086110);

THENCE North 66 degrees 38 minutes 34 seconds East, with the westernmost north line of said Vestmont tract (2019086110), a distance of 40.53 feet;

THENCE through the interior of said Vestmont tracts (2019086149/2019086110) and generally with the meanderings of a creek, the following calls:

1. South 35 degrees 52 minutes 30 seconds East, a distance of 131.06 feet;
2. North 70 degrees 11 minutes 02 seconds East, a distance of 37.85 feet;
3. South 73 degrees 34 minutes 39 seconds East, a distance of 41.46 feet;
4. South 30 degrees 58 minutes 07 seconds East, passing the common line of said Vestmont tracts (2019086149/2019086110), and continuing for a total distance of 40.68 feet;
5. South 89 degrees 10 minutes 16 seconds East, a distance of 9.40 feet;
6. South 33 degrees 25 minutes 43 seconds East, a distance of 43.85 feet;
7. South 43 degrees 56 minutes 51 seconds East, a distance of 64.14 feet;
8. South 38 degrees 53 minutes 51 seconds East, a distance of 101.94 feet;
9. South 19 degrees 58 minutes 54 seconds East, a distance of 23.16 feet;
10. South 36 degrees 44 minutes 15 seconds East, a distance of 25.17 feet;
11. South 68 degrees 40 minutes 06 seconds East, a distance of 76.26 feet;
12. South 58 degrees 54 minutes 52 seconds East, a distance of 31.06 feet;
13. South 75 degrees 27 minutes 41 seconds East, a distance of 42.28 feet;
14. South 51 degrees 13 minutes 51 seconds East, a distance of 128.90 feet to a point in the south line of said Vestmont tract (2019086149);

THENCE South 68 degrees 55 minutes 13 seconds West, a distance of 370.43 feet to the **POINT OF BEGINNING** and enclosing 2.888 acres (125,800 square feet) of land, more or less.

TRACT TWO:

BEING a tract of land out of the John B. Robinson Survey, Abstract Number 521, in Williamson County, Texas, and being a portion of those two tracts of land described by deeds to Vestmont LH 35 Partners, Ltd. as recorded under Instrument Number 2019086110 and Instrument Number 2019086149, Official Public Records of Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83)):

BEGINNING at a point in the south line of said Vestmont tract (2019086149), same being the westernmost southwest corner of the herein described tract, from which a 1/2 inch rebar with cap stamped, "SAM-INC." found for the southwest corner of said Vestmont tract (2019086149) bears South 68 degrees 55 minutes 13 seconds West, a distance of 370.43 feet;

THENCE through the interior of said Vestmont tracts (2019086149/2019086110) and generally with the meanderings of a creek, the following calls:

1. North 51 degrees 13 minutes 51 seconds West, a distance of 128.90 feet;
2. North 75 degrees 27 minutes 41 seconds West, a distance of 42.28 feet;
3. North 58 degrees 54 minutes 52 seconds West, a distance of 31.06 feet;
4. North 68 degrees 40 minutes 06 seconds West, a distance of 76.26 feet;
5. North 36 degrees 44 minutes 15 seconds West, a distance of 25.17 feet;
6. North 19 degrees 58 minutes 54 seconds West, a distance of 23.16 feet;
7. North 38 degrees 53 minutes 51 seconds West, a distance of 101.94 feet;
8. North 43 degrees 56 minutes 51 seconds West , a distance of 64.14 feet;
9. North 33 degrees 25 minutes 43 seconds West, a distance of 43.85 feet;
10. North 89 degrees 10 minutes 16 seconds West, a distance of 9.40 feet;
11. North 30 degrees 58 minutes 07 seconds West, passing the common line of said Vestmont tracts (2019086149/2019086110), and continuing for a total distance of 40.68 feet;
12. North 73 degrees 34 minutes 39 seconds West, a distance of 41.46 feet;
13. South 70 degrees 11 minutes 02 seconds West, a distance of 37.85 feet;
14. North 35 degrees 52 minutes 30 seconds West, a distance of 131.06 feet to a point in the westernmost northwest line of said Vestmont tract (2019086110);

THENCE North 66 degrees 38 minutes 34 seconds East, with the westernmost north line of said Vestmont tract (2019086110), a distance of 104.46 feet to a brass monument found for a re-entrant corner thereof;
THENCE North 22 degrees 55 minutes 01 seconds West, with the northernmost west line of said Vestmont tract (2019086110), a distance of 261.07 feet to a brass monument found for the northernmost northwest corner thereof;

THENCE North 68 degrees 55 minutes 32 seconds East, with the northernmost north line of said Vestmont tract (2019086110), a distance of 1135.20 feet;

THENCE through the interior of said Vestmont tracts (2019086149/2019086110) and generally with the meanderings of a creek, the following calls:

1. South 15 degrees 09 minutes 07 seconds East, a distance of 94.67 feet;
2. South 01 degrees 10 minutes 00 seconds East, a distance of 118.81 feet;
3. South 44 degrees 41 minutes 28 seconds West, a distance of 263.67 feet;
4. South 08 degrees 15 minutes 55 seconds West, a distance of 126.55 feet;

5. South 04 degrees 36 minutes 59 seconds East, passing the common line of said Vestmont tracts (2019086149/2019086110), and continuing for a total distance of 57.94 feet;
6. South 37 degrees 09 minutes 27 seconds East, a distance of 194.97 feet;
7. South 59 degrees 45 minutes 00 seconds East, a distance of 32.99 feet;
8. South 17 degrees 09 minutes 50 seconds East, a distance of 92.92 feet;
9. South 03 degrees 16 minutes 39 seconds East, a distance of 56.47 feet;
10. South 09 degrees 30 minutes 49 seconds West, a distance of 38.71 feet;
11. North 88 degrees 51 minutes 35 seconds West, a distance of 37.09 feet;
12. South 41 degrees 41 minutes 47 seconds West, a distance of 43.42 feet;
13. South 33 degrees 41 minutes 24 seconds West, a distance of 32.86 feet;
14. South 67 degrees 04 minutes 53 seconds West, a distance of 16.72 feet;
15. North 89 degrees 05 minutes 47 seconds West, a distance of 75.65 feet;
16. North 73 degrees 13 minutes 11 seconds West, a distance of 15.60 feet;
17. South 56 degrees 32 minutes 23 seconds West, a distance of 12.10 feet;
18. South 23 degrees 49 minutes 15 seconds West, a distance of 80.33 feet to a point in the south line of said Vestmont tract (2019086149);

THENCE South 68 degrees 55 minutes 13 seconds West, with the south line of said Vestmont tract (2019086149), a distance of 259.67 feet to the POINT OF BEGINNING and enclosing 17.559 acres (764,866 square feet) of land, more or less.

EXHIBIT "B"

PERMITTED EXCEPTIONS

1. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: Granted to: Chisholm Trail Water Supply Corp.
Purpose: potable water pipeline Recording Date: December 20, 1983
Recording No: Volume 957, Page 768, Deed Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

2. Terms, conditions and stipulations contained in City of Liberty Hill, Texas, Ordinance No. 05-0-05, recorded in Document No. 2005039347, Official Public Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

3. Terms, conditions and stipulations contained in City of Liberty Hill, Texas, Ordinance No. 05-0-08, recorded in Document No. 2005039346, Official Public Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

4. Oil, Gas and Mineral Lease, together with all rights incident thereto.

Lessor: Rex H. Mason and wife, Ann C. Mason
Lessee: Helmuth Schuenemann, Jr.
Dated: October 12, 1978
Recording No.: Volume 774, Page 559, Deed Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

5. Any rights, interests, or claims which may exist or arise by reason of the following matters disclosed by survey:
Job No.: 2020.001.131
Dated: September 17, 2021
Prepared by: John H. Barton III, Registered Professional Land Surveyor Number 6737
Matters shown: Rights of Third Parties in and to the overhead utility line as shown; utility poles; guy wires; A portion of subject property is in a Special Flood Hazard Area - Affects Tract One

Matters shown: Rights of Third Parties in and to the overhead utility line as shown; utility poles; guy wires; A portion of subject property is in a Special Flood Hazard Area; Encroachment and/or protrusion of a pond over the East property line; Encroachment and/or protrusion of a gravel drive and concrete bridge over the East property line; Encroachment and/or protrusion of center of creek over East property line; propane tanks
Affects: Tract Two

.

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2021160085

Pages: 10 Fee: $58.00
10/20/2021 09:31 AM
KCURRIE

Nancy E. Rister, County Clerk
Williamson County,Texas

ELECTRONICALLY RECORDED 2022059156
Williamson County, Texas Total Pages: 8

After Recording Return to:
CH Ventures, LLC
4849 Greenville Ave., Ste 1545
Dallas, Texas 75206
Attention: Langford Stuber

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

SPECIAL WARRANTY DEED

STATE OF TEXAS §
§
COUNTY OF WILLIAMSON §

KNOW ALL PERSONS BY THESE PRESENTS:

THAT, **VESTMONT LH 35 PARTNERS, LTD.**, a Texas limited partnership ("Grantor"), for and in consideration of the sum of Ten Dollars ($10.00) and other good and valuable consideration to Grantor, in hand paid by **CHV SAN GABRIEL PROPERTY OWNER LP**, a Texas limited partnership ("Grantee") has GRANTED, SOLD AND CONVEYED, and by these presents does hereby GRANT, SELL AND CONVEY unto Grantee a tract of land, situated in Williamson County, Texas, being more particularly described in **EXHIBIT A**, attached hereto and made a part hereof for all purposes, (the "Land"), TOGETHER WITH, all and singular, Grantors' right, title and interest, if any, in and to the following but without any kind of warranties or representations (expressed, implied, or statutory) and without recourse: (i) the rights, benefits, privileges, easements, hereditaments, appurtenances, buildings, other improvements and interests located thereon or in anywise appertaining thereto, (ii) strips or gores, if any, between the Land and abutting or immediately adjacent properties, and (iii) any land lying in or under the bed of any street, alley, road or right-of-way, opened or proposed, abutting or immediately adjacent to the Land (collectively, the "Property"). unto Grantee, the following described real property ("Lot", whether one or more) situated in Williamson County, Texas, to wit:

This conveyance is made by the Grantor and accepted by the Grantee subject to the validly existing and enforceable rights, interests and estates of third parties pursuant to the items described in **EXHIBIT B** attached hereto and made part hereof for all purposes.

TO HAVE AND TO HOLD the above described premises, together with all and singular the rights and appurtenances thereof in anywise belonging unto Grantee, its successors and assigns forever, and Grantor does hereby bind itself, its successors and assigns to WARRANT AND FOREVER DEFEND, all and singular such premises unto Grantee, its successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, by, though, or under the Grantor, but not otherwise. Whenever used, the singular number shall include the plural, and the plural the singular.

GRANTEE AGREES TO ACCEPT THE PROPERTY ON AN "AS IS" AND "WHERE IS" BASIS, WITH ALL FAULTS, AND WITHOUT ANY REPRESENTATIONS OR WARRANTY, ALL OF WHICH GRANTORS HEREBY DISCLAIM. NO REPRESENTATION OR WARRANTY IS MADE BY GRANTORS WITH RESPECT TO (I) THE VALUE, FINANCIAL CONDITION OF, THE REVENUES AND EXPENSES GENERATED BY, OR ASSOCIATED WITH, THE PROPERTY OR OTHERWISE

RELATING TO THE PROPERTY, (II) MATTERS OF TITLE, EXCEPT AS PROVIDED HEREIN, (III) ENVIRONMENTAL MATTERS RELATING TO THE PROPERTY OR ANY PORTION THEREOF, (IV) GEOLOGICAL CONDITIONS, INCLUDING, WITHOUT LIMITATION, SUBSIDENCE, SUBSURFACE CONDITIONS, WATER TABLE, UNDERGROUND WATER RESERVOIRS, LIMITATIONS REGARDING THE WITHDRAWAL OF WATER AND EARTHQUAKE FAULTS AND THE RESULTING DAMAGE OF PAST AND/OR FUTURE EARTHQUAKES, (V) WHETHER, AND TO THE EXTENT TO WHICH, THE PROPERTY OR ANY PORTION THEREOF IS AFFECTED BY ANY STREAM (SURFACE OR UNDERGROUND), BODY OF WATER, FLOOD PRONE AREA, FLOOD PLAIN, FLOODWAY OR SPECIAL FLOOD HAZARD, (VI) DRAINAGE, (VII) SOIL CONDITIONS, INCLUDING THE EXISTENCE OF INSTABILITY, PAST SOIL REPAIRS, SOIL ADDITIONS OR CONDITIONS OF SOIL FILL, OR SUSCEPTIBILITY TO LANDSLIDES, OR THE SUFFICIENCY OF ANY UNDERSHORING, (VIII) THE AVAILABILITY OF ANY UTILITIES TO THE PROPERTY OR ANY PORTION THEREOF INCLUDING, WITHOUT LIMITATION, WATER, SEWAGE, GAS AND ELECTRIC, (IX) THE USAGES OF ADJOINING PROPERTY, (X) ACCESS TO THE PROPERTY OR ANY PORTION THEREOF, (XI) THE SIZE, LOCATION, AGE, USE, DESIGN, QUALITY, DESCRIPTION, SUITABILITY, STRUCTURAL INTEGRITY, OPERATION, OR PHYSICAL CONDITION OF THE PROPERTY OR ANY PORTION THEREOF, (XII) ANY LIENS, ENCUMBRANCES, RIGHTS OR CLAIMS ON OR AFFECTING OR PERTAINING TO THE PROPERTY OR ANY PART THEREOF, (XIII) THE COMPLIANCE OF THE PROPERTY WITH ENVIRONMENTAL LAWS, OR THE PRESENCE OF HAZARDOUS SUBSTANCES IN OR ON, UNDER OR IN THE VICINITY OF THE PROPERTY, (XIV) THE CONDITION OR USE OF THE PROPERTY OR COMPLIANCE OF THE PROPERTY WITH ANY OR ALL PAST, PRESENT OR FUTURE FEDERAL, STATE OR LOCAL ORDINANCES, RULES, REGULATIONS OR LAWS, BUILDING, FIRE OR ZONING ORDINANCES, CODES OR OTHER SIMILAR LAWS, REGULATIONS AND RULES APPLICABLE TO THE PROPERTY, OR THE COMPLIANCE BY THE PROPERTY THEREWITH, (XV) THE EXISTENCE OR NON-EXISTENCE OF UNDERGROUND STORAGE TANKS IN, AT, ABOUT OR UNDER THE PROPERTY, (XVI) ANY OTHER MATTER AFFECTING THE STABILITY OR INTEGRITY OF THE PROPERTY, (XVII) THE POTENTIAL FOR FURTHER DEVELOPMENT OF THE PROPERTY, (XVIII) THE EXISTENCE OF VESTED LAND USE, ZONING OR BUILDING ENTITLEMENTS AFFECTING THE PROPERTY, (XIX) THE MERCHANTABILITY OF THE PROPERTY OR FITNESS OF THE PROPERTY FOR ANY PARTICULAR PURPOSE (GRANTEE AFFIRMING THAT GRANTEE HAS NOT RELIED ON GRANTORS' SKILL OR JUDGMENT TO SELECT OR FURNISH THE PROPERTY FOR ANY PARTICULAR PURPOSE, AND THAT GRANTORS MAKE NO WARRANTY THAT THE PROPERTY IS FIT FOR ANY PARTICULAR PURPOSE) OR (XX) TAX CONSEQUENCES. GRANTEE HEREBY ACKNOWLEDGES THAT GRANTEE HAS NOT RELIED UPON, AND WILL NOT RELY UPON, EITHER DIRECTLY OR INDIRECTLY, ANY INFORMATION, REPRESENTATION OR WARRANTY OF GRANTORS (EXCEPT AS TO TITLE), AND FURTHER ACKNOWLEDGES THAT NO SUCH REPRESENTATIONS OR WARRANTIES HAVE BEEN MADE. GRANTEE REPRESENTS THAT IT IS A KNOWLEDGEABLE, EXPERIENCED AND SOPHISTICATED GRANTEE OF REAL ESTATE, AND THAT IT IS RELYING SOLELY ON ITS OWN EXPERTISE AND THAT OF GRANTEE'S CONSULTANTS IN PURCHASING THE PROPERTY. GRANTEE HAS RELIED SOLELY ON ITS OWN INDEPENDENT INVESTIGATION AND INSPECTION OF THE PROPERTY, AND HAS CONDUCTED SUCH INSPECTIONS AND INVESTIGATIONS OF THE PROPERTY AS GRANTEE DEEMED NECESSARY. GRANTEE HEREBY ASSUMES THE RISK THAT ADVERSE MATTERS, INCLUDING, BUT NOT LIMITED TO, ADVERSE PHYSICAL AND ENVIRONMENTAL CONDITIONS, MAY NOT HAVE BEEN REVEALED BY GRANTEE'S INSPECTIONS AND INVESTIGATIONS, AND GRANTEE HEREBY RELEASES GRANTORS FROM ALL LIABILITY IN CONNECTION WITH THE SAME. GRANTEE FURTHER ACKNOWLEDGES AND AGREES THAT THERE ARE NO ORAL AGREEMENTS, WARRANTIES OR REPRESENTATIONS, COLLATERAL TO OR AFFECTING THE PROPERTY BY

GRANTORS OR ANY PERSON ACTING ON BEHALF OF GRANTORS OR ANY PERSON OR ENTITY WHICH PREPARED OR PROVIDED ANY OF THE MATERIALS REVIEWED BY GRANTEE. GRANTORS ARE NOT LIABLE OR BOUND IN ANY MANNER BY ANY ORAL OR WRITTEN STATEMENTS, REPRESENTATIONS, OR INFORMATION PERTAINING TO THE PROPERTY FURNISHED BY ANY REAL ESTATE BROKER, AGENT, EMPLOYEE, SERVANT OR OTHER PERSON, UNLESS THE SAME ARE SPECIFICALLY SET FORTH OR REFERRED TO HEREIN. GRANTEE ACKNOWLEDGES THAT THE CONSIDERATION PAID BY THE GRANTEE FOR THE PROPERTY REFLECTS THE "AS-IS" NATURE OF THIS SALE AND ANY FAULTS, LIABILITIES, DEFECTS OR OTHER ADVERSE MATTERS THAT MAY BE ASSOCIATED WITH THE PROPERTY. GRANTEE HAS FULLY REVIEWED THE DISCLAIMERS AND WAIVERS SET FORTH IN THIS DEED WITH ITS COUNSEL AND UNDERSTANDS THE SIGNIFICANCE AND EFFECT THEREOF.

All general real estate taxes, annual installments of special assessments and other state or city taxes or other assessments affecting the Property ("Real Estate Taxes") for the 2022 calendar year have been prorated between Grantors and Grantee as of the date hereof. Grantee, by its acceptance of this Special Warranty Deed, assumes payment of all such Real Estate Taxes for the 2022 calendar year and later calendar years not yet due and payable, each to the extent attributable to all or part of the Property. Grantee additionally assumes responsibility and payment for all ad valorem taxes assessed to the Property for years prior to the date hereof resulting from a change in use of the Property, occurring before or after the date hereof.

[REMAINDER OF PAGE INTENTIONALLY LEFT BLANK]

EXECUTED this 2nd day of May, 2022.

GRANTOR:

VESTMONT LH 35 PARTNERS, LTD.,
a Texas limited partnership

By: Vestmont Investments 1, LLC,
a Texas limited liability company

By: _____
Jeremy Steenerson, Manager

ACKNOWLEDGMENT

STATE OF TEXAS §
COUNTY OF ~~WILLIAMSON~~ Collin (SC) §

BEFORE ME, the undersigned, a Notary Public in and for said County and State, on this day personally appeared Jeremy Steenerson, the Manager of Vestmont Investments 1, LLC, the general partner of VESTMONT LH 35 PARTNERS, LTD., a Texas limited partnership, known to me to be the person and officer whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same as the act and deed of said entity, for the purposes and consideration therein expressed, and in the capacity therein stated.

Given under my hand and seal of office this 2nd day of May, 2022.

SO HEE LIM
Notary Public, State of Texas
Comm. Expires 03-17-2024
Notary ID 130586837

_____
NOTARY PUBLIC, STATE OF TEXAS
Printed Name: _____
My Commission Expires: _____

Grantees Address
4849 Greenville Ave #1515
Dallas TX 75206

EXHIBIT "A"

LEGAL DESCRIPTION

BEING a tract of land out of the John B. Robinson Survey, Abstract Number 521, in Williamson County, Texas, and being a portion of those two tracts of land described by deeds to Vestmont LH 35 Partners, Ltd. as recorded under Instrument Number 2019086110 and Instrument Number 2019086149, Official Public Records of Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83)):

BEGINNING at a point in the south line of said Vestmont tract (2019086149), same being the westernmost southwest corner of the herein described tract, from which a 1/2 inch rebar with cap stamped, "SAM-INC." found for the southwest corner of said Vestmont tract (2019086149) bears South 68 degrees 55 minutes 13 seconds West, a distance of 630.10 feet;

THENCE through the interior of said Vestmont tracts (2019086149/2019086110) and generally with the meanderings of a creek, the following calls:

1. North 23 degrees 49 minutes 15 seconds East, a distance of 80.33 feet;
2. North 56 degrees 32 minutes 23 seconds East, a distance of 12.10 feet;
3. South 73 degrees 13 minutes 11 seconds East, a distance of 15.60 feet;
4. South 89 degrees 05 minutes 47 seconds East, a distance of 75.65 feet;
5. North 67 degrees 04 minutes 53 seconds East, a distance of 16.72 feet;
6. North 33 degrees 41 minutes 24 seconds East, a distance of 32.86 feet;
7. North 41 degrees 41 minutes 47 seconds East, a distance of 43.42 feet;
8. South 88 degrees 51 minutes 35 seconds East, a distance of 37.09 feet;
9. North 09 degrees 30 minutes 49 seconds East, a distance of 38.71 feet;
10. North 03 degrees 16 minutes 39 seconds West, a distance of 56.47 feet;
11. North 17 degrees 09 minutes 50 seconds West, a distance of 92.92 feet;
12. North 59 degrees 45 minutes 00 seconds West, a distance of 32.99 feet;
13. North 37 degrees 09 minutes 27 seconds West, a distance of 194.97 feet;
14. North 04 degrees 36 minutes 59 seconds West, passing the common line of said Vestmont tracts (2019086149/2019086110), and continuing a total distance of 57.94 feet;
15. North 08 degrees 15 minutes 55 seconds East, a distance of 126.55 feet;
16. North 44 degrees 41 minutes 28 seconds East, a distance of 263.67 feet;
17. North 01 degrees 10 minutes 00 seconds West, a distance of 118.81 feet;
18. North 15 degrees 09 minutes 07 seconds West, a distance of 94.67 feet to a point in the north line of said Vestmont tract (2019086110);

THENCE North 68 degrees 55 minutes 32 seconds East, with the north line of said Vestmont tract (2019086110), a distance of 494.95 feet to a 1/2 inch rebar found for the northeast corner thereof;

THENCE South 20 degrees 35 minutes 43 seconds East, with the east line of said Vestmont tract (2019086110), passing at a distance of 459.97 feet a 1/2 inch rebar found for the southeast

corner thereof, same being the northeast corner of said Vestmont tract (2019086149), and continuing for a total distance of 919.77 feet to a 1/2 inch rebar found for the southeast corner of said Vestmont tract (2019086149);

THENCE South 68 degrees 55 minutes 13 seconds West, with the south line of said Vestmont tract (2019086149), a distance of 1092.48 feet to the **POINT OF BEGINNING** and enclosing 15.678 acres (682,947 square feet) of land, more or less.

EXHIBIT "B"

PERMITTED EXCEPTIONS

1. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document: Granted to: Chisholm Trail Water Supply Corp.
Purpose: potable water pipeline Recording Date: December 20, 1983
Recording No: Volume 957, Page 768, Deed Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

2. Terms, conditions and stipulations contained in City of Liberty Hill, Texas, Ordinance No. 05-0-05, recorded in Document No. 2005039347, Official Public Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

3. Oil, Gas and Mineral Lease, together with all rights incident thereto.

Lessor: Rex H. Mason and wife, Ann C. Mason
Lessee: Helmuth Schuenemann, Jr.
Dated: October 12, 1978
Recording No.: Volume 774, Page 559, Deed Records of Williamson County, Texas.

Noted on survey dated September 17, 2021, by Kirkman Engineering, prepared by John Homer Barton III, Registered Professional Land Surveyor Number 6737, Job Number 2020.001.131

4. Any rights, interests, or claims which may exist or arise by reason of the following matters disclosed by survey:

Job No.: 2020.001.131
Dated: September 17, 2021
Prepared by: John H. Barton III, Registered Professional Land Surveyor Number 6737
Matters shown: Rights of Third Parties in and to the overhead utility line as shown; utility poles; guy wires; A portion of subject property is in a Special Flood Hazard Area.

Matters shown: Rights of Third Parties in and to the overhead utility line as shown; utility poles; guy wires; A portion of subject property is in a Special Flood Hazard Area; Encroachment and/or protrusion of a pond over the East property line; Encroachment and/or protrusion of a gravel drive and concrete bridge over the East property line; Encroachment and/or protrusion of center of creek over East property line; propane tanks

ELECTRONICALLY RECORDED
OFFICIAL PUBLIC RECORDS

2022059156

Pages: 8 Fee: $50.00
05/12/2022 10:38 AM
MBARRICK

Nancy E. Rister, County Clerk
Williamson County,Texas

Texas Commission on Environmental Quality

Edwards Aquifer Application Cover Page

Our Review of Your Application

The Edwards Aquifer Program staff conducts an administrative and technical review of all applications. The turnaround time for administrative review can be up to 30 days as outlined in 30 TAC 213.4(e). Generally administrative completeness is determined during the intake meeting or within a few days of receipt. The turnaround time for technical review of an administratively complete Edwards Aquifer application is 90 days as outlined in 30 TAC 213.4(e). Please know that the review and approval time is directly impacted by the quality and completeness of the initial application that is received. In order to conduct a timely review, it is imperative that the information provided in an Edwards Aquifer application include final plans, be accurate, complete, and in compliance with 30 TAC 213.

Administrative Review

1. Edwards Aquifer applications must be deemed administratively complete before a technical review can begin. To be considered administratively complete, the application must contain completed forms and attachments, provide the requested information, and meet all the site plan requirements. The submitted application and plan sheets should be final plans. Please submit one full-size set of plan sheets with the original application, and half-size sets with the additional copies.

   To ensure that all applicable documents are included in the application, the program has developed tools to guide you and web pages to provide all forms, checklists, and guidance. Please visit the below website for assistance: http://www.tceq.texas.gov/field/eapp.

2. This Edwards Aquifer Application Cover Page form (certified by the applicant or agent) must be included in the application and brought to the administrative review meeting.

3. Administrative reviews are scheduled with program staff who will conduct the review. Applicants or their authorized agent should call the appropriate regional office, according to the county in which the project is located, to schedule a review. The average meeting time is one hour.

4. In the meeting, the application is examined for administrative completeness. Deficiencies will be noted by staff and emailed or faxed to the applicant and authorized agent at the end of the meeting, or shortly after. Administrative deficiencies will cause the application to be deemed incomplete and returned.

   An appointment should be made to resubmit the application. The application is re-examined to ensure all deficiencies are resolved. The application will only be deemed administratively complete when all administrative deficiencies are addressed.

5. If an application is received by mail, courier service, or otherwise submitted without a review meeting, the administrative review will be conducted within 30 days. The applicant and agent will be contacted with the results of the administrative review. If the application is found to be administratively incomplete, it can be retrieved from the regional office or returned by regular mail. If returned by mail, the regional office may require arrangements for return shipping.

6. If the geologic assessment was completed before October 1, 2004 and the site contains “possibly sensitive” features, the assessment must be updated in accordance with the *Instructions to Geologists* (TCEQ-0585 Instructions).

Technical Review

1. When an application is deemed administratively complete, the technical review period begins. The regional office will distribute copies of the application to the identified affected city, county, and groundwater conservation district whose jurisdiction includes the subject site. These entities and the public have 30 days to provide comments on the application to the regional office. All comments received are reviewed by TCEQ.

2. A site assessment is usually conducted as part of the technical review, to evaluate the geologic assessment and observe existing site conditions. The site must be accessible to our staff. The site boundaries should be

clearly marked, features identified in the geologic assessment should be flagged, roadways marked and the alignment of the Sewage Collection System and manholes should be staked at the time the application is submitted. If the site is not marked the application may be returned.

3. We evaluate the application for technical completeness and contact the applicant and agent via Notice of Deficiency (NOD) to request additional information and identify technical deficiencies. There are two deficiency response periods available to the applicant. There are 14 days to resolve deficiencies noted in the first NOD. If a second NOD is issued, there is an additional 14 days to resolve deficiencies. If the response to the second notice is not received, is incomplete or inadequate, or provides new information that is incomplete or inadequate, the application must be withdrawn or will be denied. Please note that because the technical review is underway, whether the application is withdrawn or denied **the application fee will be forfeited**.

4. The program has 90 calendar days to complete the technical review of the application. If the application is technically adequate, such that it complies with the Edwards Aquifer rules, and is protective of the Edwards Aquifer during and after construction, an approval letter will be issued. Construction or other regulated activity may not begin until an approval is issued.

Mid-Review Modifications

It is important to have final site plans prior to beginning the permitting process with TCEQ to avoid delays.

Occasionally, circumstances arise where you may have significant design and/or site plan changes after your Edwards Aquifer application has been deemed administratively complete by TCEQ. This is considered a "Mid-Review Modification". Mid-Review Modifications may require redistribution of an application that includes the proposed modifications for public comment.

If you are proposing a Mid-Review Modification, two options are available:

- If the technical review has begun your application can be denied/withdrawn, your fees will be forfeited, and the plan will have to be resubmitted.
- TCEQ can continue the technical review of the application as it was submitted, and a modification application can be submitted at a later time.

If the application is denied/withdrawn, the resubmitted application will be subject to the administrative and technical review processes and will be treated as a new application. The application will be redistributed to the affected jurisdictions.

Please contact the regional office if you have questions. If your project is located in Williamson, Travis, or Hays County, contact TCEQ's Austin Regional Office at 512-339-2929. If your project is in Comal, Bexar, Medina, Uvalde, or Kinney County, contact TCEQ's San Antonio Regional Office at 210-490-3096

Please fill out all required fields below and submit with your application.

1. Regulated Entity Name: Liberty Hill 15						**2. Regulated Entity No.:**			
3. Customer Name: AR Reddy Spring Creek LLC. CHV San Gabriel Property Owner LP						**4. Customer No.:**			
5. Project Type: **(Please circle/check one)**	(New)		Modification			Extension		Exception	
6. Plan Type: **(Please circle/check one)**	WPAP	(CZP)	SCS	UST	AST	EXP	EXT	Technical Clarification	Optional Enhanced Measures
7. Land Use: **(Please circle/check one)**	Residential		(Non-residential)			**8. Site (acres):**		36.125	
9. Application Fee:	$ 6,500		**10. Permanent BMP(s):**			Vegetative Filter Strips			
11. SCS (Linear Ft.):	N/A		**12. AST/UST (No. Tanks):**			N/A			
13. County:	Williamson		**14. Watershed:**			South Fork San Gabriel			

Application Distribution

Instructions: Use the table below to determine the number of applications required. One original and one copy of the application, plus additional copies (as needed) for each affected incorporated city, county, and groundwater conservation district are required. Linear projects or large projects, which cross into multiple jurisdictions, can require additional copies. Refer to the "Texas Groundwater Conservation Districts within the EAPP Boundaries" map found at:

http://www.tceq.texas.gov/assets/public/compliance/field_ops/eapp/EAPP%20GWCD%20map.pdf

For more detailed boundaries, please contact the conservation district directly.

Austin Region			
County:	**Hays**	**Travis**	**Williamson**
Original (1 req.)	__	__	__
Region (1 req.)	__	__	__
County(ies)	__	__	__
Groundwater Conservation District(s)	__Edwards Aquifer Authority __Barton Springs/ Edwards Aquifer __Hays Trinity __Plum Creek	__Barton Springs/ Edwards Aquifer	NA
City(ies) Jurisdiction	__Austin __Buda __Dripping Springs __Kyle __Mountain City __San Marcos __Wimberley __Woodcreek	__Austin __Bee Cave __Pflugerville __Rollingwood __Round Rock __Sunset Valley __West Lake Hills	__Austin __Cedar Park __Florence __Georgetown __Jerrell __Leander X Liberty Hill __Pflugerville __Round Rock

San Antonio Region					
County:	**Bexar**	**Comal**	**Kinney**	**Medina**	**Uvalde**
Original (1 req.)	__	__	__	__	__
Region (1 req.)	__	__	__	__	__
County(ies)	__	__	__	__	__
Groundwater Conservation District(s)	__ Edwards Aquifer Authority __Trinity-Glen Rose	__Edwards Aquifer Authority	__Kinney	__EAA __Medina	__EAA __Uvalde
City(ies) Jurisdiction	__Castle Hills __Fair Oaks Ranch __Helotes __Hill Country Village __Hollywood Park __San Antonio (SAWS) __Shavano Park	__Bulverde __Fair Oaks Ranch __Garden Ridge __New Braunfels __Schertz	NA	__San Antonio ETJ (SAWS)	NA

I certify that to the best of my knowledge, that the application is complete and accurate. This application is hereby submitted to TCEQ for administrative review and technical review. PRASHANTIKA GAUTAM
Print Name of Customer/Authorized Agent *Prashantika Gautam* 10/09/23
Signature of Customer/Authorized Agent Date

FOR TCEQ INTERNAL USE ONLY				
Date(s)Reviewed:		Date Administratively Complete:		
Received From:		Correct Number of Copies:		
Received By:		Distribution Date:		
EAPP File Number:		Complex:		
Admin. Review(s) (No.):		No. AR Rounds:		
Delinquent Fees (Y/N):		Review Time Spent:		
Lat./Long. Verified:		SOS Customer Verification:		
Agent Authorization Complete/Notarized (Y/N):		Fee Check:	Payable to TCEQ (Y/N):	
Core Data Form Complete (Y/N):			Signed (Y/N):	
Core Data Form Incomplete Nos.:			Less than 90 days old (Y/N):	

Contributing Zone Plan Application

Texas Commission on Environmental Quality

for Regulated Activities on the Contributing Zone to the Edwards Aquifer and Relating to 30 TAC §213.24(1), Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Contributing Zone Plan Application** is hereby submitted for TCEQ review and Executive Director approval. The application was prepared by:

Print Name of Customer/Agent: Langford Stuber, Raju Padigala

Date: 10/9/23

Signature of Customer/Agent:

Langford Stuber

Regulated Entity Name: Liberty Hill 15

Project Information

1. County: Williamson
2. Stream Basin South Fork San Gabriel
3. Groundwater Conservation District (if applicable): n/a
4. Customer (Applicant):

   Contact Person: Langford Stuber, Raju Padigala
   Entity: CHV San Gabriel Property Owner LP , AR Reddy Spring Creek LLC
   Mailing Address: 4849 Greenville Ave, Suite 1545 and 6253 Corvara Court
   City, State: Dallas and Frisco , Texas Zip: 75206, 75035
   Telephone: 214-435-7510, 512-761-8025 Fax: _____
   Email Address: langford@chalkhillventures.com, raj@theprimedeveloper.com

5. Agent/Representative (If any):

Contact Person: Sandy Brantley
Entity: Kirkman Engineering
Mailing Address: 1130 Cottonwood Creek Trail, Suite C3
City, State: Cedar Park,Texas Zip: 78613
Telephone: 512-428-8586 Fax: _____
Email Address: sandy.brantley@trustke.com

6. Project Location:

☐ The project site is located inside the city limits of _____.
☒ The project site is located outside the city limits but inside the ETJ (extra-territorial jurisdiction) of Liberty Hill
☐ The project site is not located within any city's limits or ETJ.

7. ☒ The location of the project site is described below. Sufficient detail and clarity has been provided so that the TCEQ's Regional staff can easily locate the project and site boundaries for a field investigation.

Southeast corner of Highway 183 & Larkspur Park Blvd

8. ☒ **Attachment A - Road Map**. A road map showing directions to and the location of the project site is attached. The map clearly shows the boundary of the project site.

9. ☒ **Attachment B - USGS Quadrangle Map**. A copy of the official 7 ½ minute USGS Quadrangle Map (Scale: 1" = 2000') is attached. The map(s) clearly show:

☒ Project site boundaries.
☒ USGS Quadrangle Name(s).

10. ☒ **Attachment C - Project Narrative**. A detailed narrative description of the proposed project is attached. The project description is consistent throughout the application and contains, at a minimum, the following details:

☒ Area of the site
☒ Offsite areas
☒ Impervious cover
☒ Permanent BMP(s)
☒ Proposed site use
☒ Site history
☒ Previous development
☒ Area(s) to be demolished

11. Existing project site conditions are noted below:

☐ Existing commercial site
☐ Existing industrial site
☒ Existing residential site

☐ Existing paved and/or unpaved roads
☐ Undeveloped (Cleared)
☒ Undeveloped (Undisturbed/Not cleared)
☐ Other: _____

12. The type of project is:

☐ Residential: # of Lots: _____
☐ Residential: # of Living Unit Equivalents: _____
☒ Commercial
☐ Industrial
☐ Other: _____

13. Total project area (size of site): 36 Acres

Total disturbed area: 12.20 Acres

14. Estimated projected population: 0

15. The amount and type of impervious cover expected after construction is complete is shown below:

Table 1 - Impervious Cover

Impervious Cover of Proposed Project	*Sq. Ft.*	*Sq. Ft./Acre*	*Acres*
Structures/Rooftops		÷ 43,560 =	
Parking		÷ 43,560 =	
Other paved surfaces	81,022	÷ 43,560 =	1.860
Total Impervious Cover	81,022	÷ 43,560 =	1.860

Total Impervious Cover 1.860 **÷ Total Acreage** 36 **X 100 =** 5.2 **% Impervious Cover**

16. ☒ **Attachment D - Factors Affecting Surface Water Quality**. A detailed description of all factors that could affect surface water quality is attached. If applicable, this includes the location and description of any discharge associated with industrial activity other than construction.

17. ☒ Only inert materials as defined by 30 TAC 330.2 will be used as fill material.

For Road Projects Only

Complete questions 18 - 23 if this application is exclusively for a road project.

☒ N/A

18. Type of project:

- ☐ TXDOT road project.
- ☐ County road or roads built to county specifications.
- ☐ City thoroughfare or roads to be dedicated to a municipality.
- ☐ Street or road providing access to private driveways.

19. Type of pavement or road surface to be used:

- ☐ Concrete
- ☐ Asphaltic concrete pavement
- ☐ Other: _____

20. Right of Way (R.O.W.):

Length of R.O.W.: _____ feet.
Width of R.O.W.: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.

21. Pavement Area:

Length of pavement area: _____ feet.
Width of pavement area: _____ feet.
L x W = _____Ft^2 ÷ 43,560 Ft^2/Acre = _____ acres.
Pavement area _____ acres ÷ R.O.W. area _____ acres x 100 = _____% impervious cover.

22. ☐ A rest stop will be included in this project.

☐ A rest stop will not be included in this project.

23. ☐ Maintenance and repair of existing roadways that do not require approval from the TCEQ Executive Director. Modifications to existing roadways such as widening roads/adding shoulders totaling more than one-half (1/2) the width of one (1) existing lane require prior approval from the TCEQ.

Stormwater to be generated by the Proposed Project

24. ☒ **Attachment E - Volume and Character of Stormwater**. A detailed description of the volume (quantity) and character (quality) of the stormwater runoff which is expected to occur from the proposed project is attached. The estimates of stormwater runoff quality and quantity are based on area and type of impervious cover. Include the runoff coefficient of the site for both pre-construction and post-construction conditions.

Wastewater to be generated by the Proposed Project

25. ☒ Wastewater is to be discharged in the contributing zone. Requirements under 30 TAC §213.6(c) relating to Wastewater Treatment and Disposal Systems have been satisfied.

☐ N/A

26. Wastewater will be disposed of by:

☐ On-Site Sewage Facility (OSSF/Septic Tank):

☐ **Attachment F - Suitability Letter from Authorized Agent**. An on-site sewage facility will be used to treat and dispose of the wastewater from this site. The appropriate licensing authority's (authorized agent) written approval is attached. It states that the land is suitable for the use of private sewage facilities and will meet or exceed the requirements for on-site sewage facilities as specified under 30 TAC Chapter 285 relating to On-site Sewage Facilities.

☐ Each lot in this project/development is at least one (1) acre (43,560 square feet) in size. The system will be designed by a licensed professional engineer or registered sanitarian and installed by a licensed installer in compliance with 30 TAC Chapter 285.

☒ Sewage Collection System (Sewer Lines):
The sewage collection system will convey the wastewater to the liberty hill wastewater (name) Treatment Plant. The treatment facility is:

☒ Existing.
☐ Proposed.

☐ N/A

Permanent Aboveground Storage Tanks(ASTs) ≥ 500 Gallons

Complete questions 27 - 33 if this project includes the installation of AST(s) with volume(s) greater than or equal to 500 gallons.

☒ N/A

27. Tanks and substance stored:

Table 2 - Tanks and Substance Storage

AST Number	*Size (Gallons)*	*Substance to be Stored*	*Tank Material*
1			
2			
3			
4			
5			

Total x 1.5 = _____ Gallons

28. ☐ The AST will be placed within a containment structure that is sized to capture one and one-half (1 1/2) times the storage capacity of the system. For facilities with more than

one tank system, the containment structure is sized to capture one and one-half (1 1/2) times the cumulative storage capacity of all systems.

☐ **Attachment G - Alternative Secondary Containment Methods**. Alternative methods for providing secondary containment are proposed. Specifications showing equivalent protection for the Edwards Aquifer are attached.

29. Inside dimensions and capacity of containment structure(s):

Table 3 - Secondary Containment

Length (L)(Ft.)	*Width(W)(Ft.)*	*Height (H)(Ft.)*	*L x W x H = (Ft3)*	*Gallons*

Total: _____ Gallons

30. Piping:

☐ All piping, hoses, and dispensers will be located inside the containment structure.
☐ Some of the piping to dispensers or equipment will extend outside the containment structure.
☐ The piping will be aboveground
☐ The piping will be underground

31. ☐ The containment area must be constructed of and in a material impervious to the substance(s) being stored. The proposed containment structure will be constructed of: _____.

32. ☐ **Attachment H - AST Containment Structure Drawings**. A scaled drawing of the containment structure is attached that shows the following:

☐ Interior dimensions (length, width, depth and wall and floor thickness).
☐ Internal drainage to a point convenient for the collection of any spillage.
☐ Tanks clearly labeled
☐ Piping clearly labeled
☐ Dispenser clearly labeled

33. ☐ Any spills must be directed to a point convenient for collection and recovery. Spills from storage tank facilities must be removed from the controlled drainage area for disposal within 24 hours of the spill.

☐ In the event of a spill, any spillage will be removed from the containment structure within 24 hours of the spill and disposed of properly.

☐ In the event of a spill, any spillage will be drained from the containment structure through a drain and valve within 24 hours of the spill and disposed of properly. The drain and valve system are shown in detail on the scaled drawing.

Site Plan Requirements

Items 34 - 46 must be included on the Site Plan.

34. ☒ The Site Plan must have a minimum scale of 1" = 400'.

    Site Plan Scale: 1" = 60' '.

35. 100-year floodplain boundaries:

    ☒ Some part(s) of the project site is located within the 100-year floodplain. The floodplain is shown and labeled.

    ☐ No part of the project site is located within the 100-year floodplain.

    The 100-year floodplain boundaries are based on the following specific (including date of material) sources(s): _____.

36. ☒ The layout of the development is shown with existing and finished contours at appropriate, but not greater than ten-foot contour intervals. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

    ☐ The layout of the development is shown with existing contours at appropriate, but not greater than ten-foot contour intervals. Finished topographic contours will not differ from the existing topographic configuration and are not shown. Lots, recreation centers, buildings, roads, etc. are shown on the site plan.

37. ☒ A drainage plan showing all paths of drainage from the site to surface streams.

38. ☒ The drainage patterns and approximate slopes anticipated after major grading activities.

39. ☒ Areas of soil disturbance and areas which will not be disturbed.

40. ☒ Locations of major structural and nonstructural controls. These are the temporary and permanent best management practices.

41. ☒ Locations where soil stabilization practices are expected to occur.

42. ☒ Surface waters (including wetlands).

    ☐ N/A

43. ☒ Locations where stormwater discharges to surface water.

    ☐ There will be no discharges to surface water.

44. ☐ Temporary aboveground storage tank facilities.

    ☒ Temporary aboveground storage tank facilities will not be located on this site.

45. ☐ Permanent aboveground storage tank facilities.

☒ Permanent aboveground storage tank facilities will not be located on this site.

46. ☒ Legal boundaries of the site are shown.

Permanent Best Management Practices (BMPs)

Practices and measures that will be used during and after construction is completed.

47. ☒ Permanent BMPs and measures must be implemented to control the discharge of pollution from regulated activities after the completion of construction.

☐ N/A

48. ☒ These practices and measures have been designed, and will be constructed, operated, and maintained to insure that 80% of the incremental increase in the annual mass loading of total suspended solids (TSS) from the site caused by the regulated activity is removed. These quantities have been calculated in accordance with technical guidance prepared or accepted by the executive director.

☒ The TCEQ Technical Guidance Manual (TGM) was used to design permanent BMPs and measures for this site.

☐ A technical guidance other than the TCEQ TGM was used to design permanent BMPs and measures for this site. The complete citation for the technical guidance that was used is: _____.

☐ N/A

49. ☒ Owners must insure that permanent BMPs and measures are constructed and function as designed. A Texas Licensed Professional Engineer must certify in writing that the permanent BMPs or measures were constructed as designed. The certification letter must be submitted to the appropriate regional office within 30 days of site completion.

☐ N/A

50. Where a site is used for low density single-family residential development and has 20 % or less impervious cover, other permanent BMPs are not required. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

☐ The site will be used for low density single-family residential development and has 20% or less impervious cover.

☐ The site will be used for low density single-family residential development but has more than 20% impervious cover.

☒ The site will not be used for low density single-family residential development.

51. The executive director may waive the requirement for other permanent BMPs for multi-family residential developments, schools, or small business sites where 20% or less impervious cover is used at the site. This exemption from permanent BMPs must be recorded in the county deed records, with a notice that if the percent impervious cover increases above 20% or land use changes, the exemption for the whole site as described in the property boundaries required by 30 TAC §213.4(g) (relating to Application Processing and Approval), may no longer apply and the property owner must notify the appropriate regional office of these changes.

    ☐ **Attachment I - 20% or Less Impervious Cover Waiver**. The site will be used for multi-family residential developments, schools, or small business sites and has 20% or less impervious cover. A request to waive the requirements for other permanent BMPs and measures is attached.
    ☐ The site will be used for multi-family residential developments, schools, or small business sites but has more than 20% impervious cover.
    ☒ The site will not be used for multi-family residential developments, schools, or small business sites.

52. ☒ **Attachment J - BMPs for Upgradient Stormwater**.

    ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site is attached.
    ☐ No surface water, groundwater or stormwater originates upgradient from the site and flows across the site, and an explanation is attached.
    ☐ Permanent BMPs or measures are not required to prevent pollution of surface water, groundwater, or stormwater that originates upgradient from the site and flows across the site, and an explanation is attached.

53. ☒ **Attachment K - BMPs for On-site Stormwater**.

    ☐ A description of the BMPs and measures that will be used to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff from the site is attached.
    ☐ Permanent BMPs or measures are not required to prevent pollution of surface water or groundwater that originates on-site or flows off the site, including pollution caused by contaminated stormwater runoff, and an explanation is attached.

54. ☒ **Attachment L - BMPs for Surface Streams**. A description of the BMPs and measures that prevent pollutants from entering surface streams is attached.

    ☐ N/A

55. ☒ **Attachment M - Construction Plans**. Construction plans and design calculations for the proposed permanent BMPs and measures have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer, and are signed, sealed, and dated. Construction plans for the proposed permanent BMPs and measures are

attached and include: Design calculations, TCEQ Construction Notes, all proposed structural plans and specifications, and appropriate details.

☐ N/A

56. ☒ **Attachment N - Inspection, Maintenance, Repair and Retrofit Plan**. A site and BMP specific plan for the inspection, maintenance, repair, and, if necessary, retrofit of the permanent BMPs and measures is attached. The plan fulfills all of the following:

☒ Prepared and certified by the engineer designing the permanent BMPs and measures
☒ Signed by the owner or responsible party
☒ Outlines specific procedures for documenting inspections, maintenance, repairs, and, if necessary, retrofit.
☒ Contains a discussion of record keeping procedures

☐ N/A

57. ☐ **Attachment O - Pilot-Scale Field Testing Plan**. Pilot studies for BMPs that are not recognized by the Executive Director require prior approval from the TCEQ. A plan for pilot-scale field testing is attached.

☒ N/A

58. ☒ **Attachment P - Measures for Minimizing Surface Stream Contamination**. A description of the measures that will be used to avoid or minimize surface stream contamination and changes in the way in which water enters a stream as a result of the construction and development is attached. The measures address increased stream flashing, the creation of stronger flows and in-stream velocities, and other in-stream effects caused by the regulated activity, which increase erosion that result in water quality degradation.

☐ N/A

Responsibility for Maintenance of Permanent BMPs and Measures after Construction is Complete.

59. ☒ The applicant is responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property (such as without limitation, an owner's association, a new property owner or lessee, a district, or municipality) or the ownership of the property is transferred to the entity. Such entity shall then be responsible for maintenance until another entity assumes such obligations in writing or ownership is transferred.

60. ☒ A copy of the transfer of responsibility must be filed with the executive director at the appropriate regional office within 30 days of the transfer if the site is for use as a multiple single-family residential development, a multi-family residential development,

or a non-residential development such as commercial, industrial, institutional, schools, and other sites where regulated activities occur.

Administrative Information

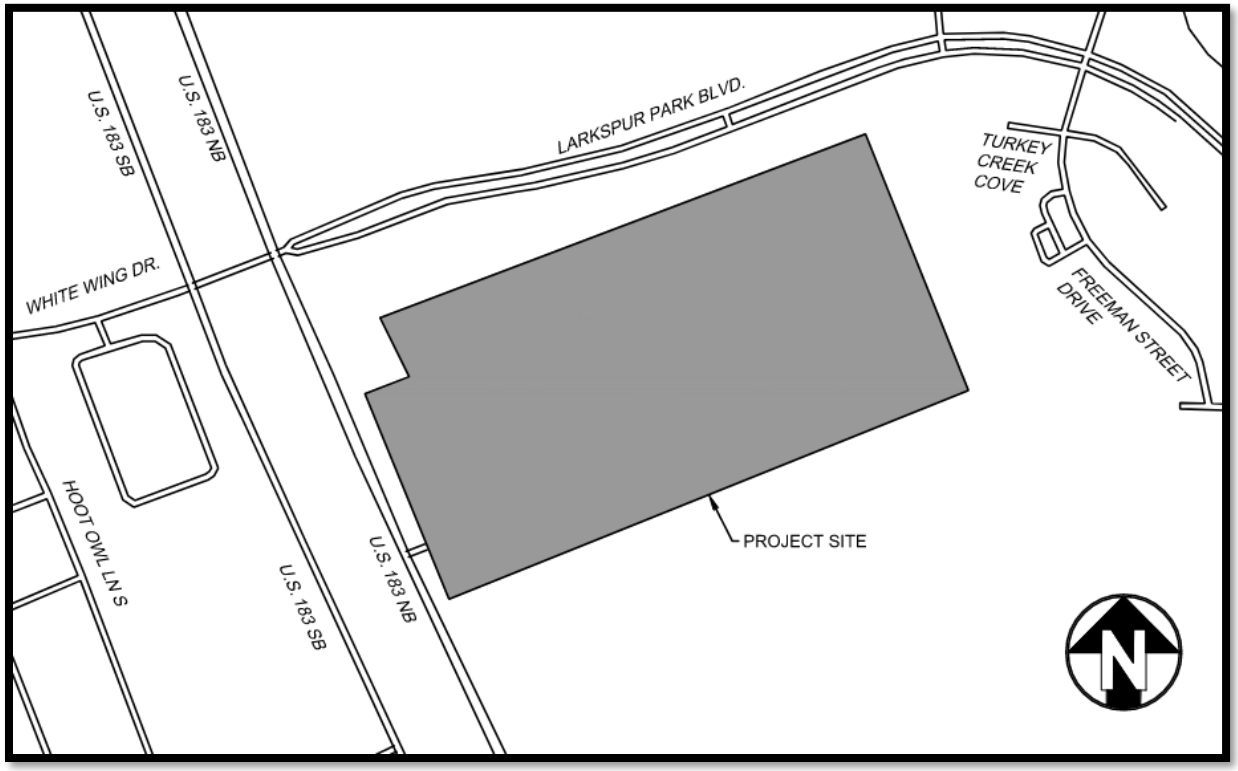
61. ☒ Submit one (1) original and one (1) copy of the application, plus additional copies as needed for each affected incorporated city, groundwater conservation district, and county in which the project will be located. The TCEQ will distribute the additional copies to these jurisdictions.

62. ☒ Any modification of this Contributing Zone Plan may require TCEQ review and Executive Director approval prior to construction, and may require submission of a revised application, with appropriate fees.

63. ☒ The site description, controls, maintenance, and inspection requirements for the storm water pollution prevention plan (SWPPP) developed under the EPA NPDES general permits for stormwater discharges have been submitted to fulfill paragraphs 30 TAC §213.24(1-5) of the technical report. All requirements of 30 TAC §213.24(1-5) have been met by the SWPPP document.

☒ The Temporary Stormwater Section (TCEQ-0602) is included with the application.

ATTACHMENT A
ROAD MAP



SITE MAP

N.T.S

ATTACHMENT B
USGS QUADRANGLE MAP

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

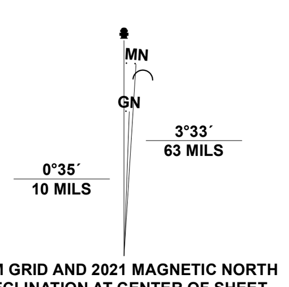
The National Map OnDemand Topo

7.5-MINUTE TOPO QUADRANGLE
Custom Extent
7.5-MINUTE TOPO

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 14R
Data is provided by The National Map (TNM), is the best available at the time of map generation, and includes data content from supporting themes of Elevation, Hydrography, Geographic Names, Boundaries, Transportation, Structures, Land Cover, and Orthoimagery. Refer to associated Federal Geographic Data Committee (FGDC) Metadata for additional source data information.

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands. Temporal changes may have occurred since these data were collected and some data may no longer represent actual surface conditions.

Learn About The National Map: https://nationalmap.gov



UTM GRID AND 2021 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

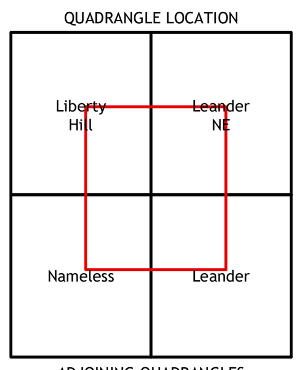
U.S. National Grid
100,000 - m Square ID
PU
Grid Zone Designation 14R

SCALE 1:24 000

1 0.5 0 1 2 KILOMETERS
1000 500 0 1000 2000 METERS
1 0.5 0 1 MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000 FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
CONTOUR SMOOTHNESS = Medium

QUADRANGLE LOCATION



ADJOINING QUADRANGLES

ROAD CLASSIFICATION

Expressway		Local Connector	
Secondary Hwy		Local Road	
Ramp		4WD	

Interstate Route US Route State Route

7.5-MINUTE TOPO, TX
2023

ATTACHMENT C
PROJECT NARRATIVE

The property is located at the southeast corner of US Highway 183 and Larkspur Boulevard. This 36-acre tract is planned for mixed use commercial development. This phase proposes 38,221 SF of concrete roadway starting at the US 183 HWY to serve the future development. This site will have proposed storm boxes to divert the flow to support future development without impact to the flood waters.

The existing land use was single family residential and agricultural. The existing residential structure will be demolished along with 1,061 SF of concrete pavement, 3,305 SF of gravel road and six 36" existing storm pipes. There are two- existing creeks centralized on the property which conveys off-site and on-site flows.

With this phase of development approximately 12.20 acres of the project site will be disturbed. Future onsite developments will follow in the next phases of development. It is understood that these developments will be required to go through the TCEQ Contributing Zone Plan application during design and development.

This phase of development produces less than 20 percent of impervious area, Vegetative Filter Strips will be used as a Permanent BMP's.

ATTACHMENT D
FACTORS AFFECTING SURFACE WATER QUALITY

The factors that could affect surface water quality are as follows:

1. Lack of natural infiltration- this causes dirt and silt to flow into the surface water.
2. Pollutants from vehicles and surface- this can affect the quality of the surface water.

ATTACHMENT E
VOLUME AND CHARACTER OF STORMWATER

Preconstruction condition of the site shows the land sheet flowing to the existing creek on the site. Using the rational method, 10.61 acres of the site with preconstruction runoff coefficient of 0.344 drains to the southwest existing creek line. 25.06 acres of the site with preconstruction runoff coefficient of 0.340 drains to the northeastern creek line.

For the post construction condition of the site, 10.61 acres discharges at 69.24 cfs at peak discharge, with 100-year runoff coefficient of 0.393 into the southeastern creek line. Approximately 157.28 cfs from the 25.06 acres enters the northeast creek line, with 100-year runoff with coefficient of 0.386.

There are two unnamed tributaries that join at the southern part of the project site. Based on the result of the attached flood study, the proposed project does not cause an adverse hydrologic impact, hence does not require on-site stormwater detention.

ATTACHMENT J
BMPs UPGRADIENT STORMWATER

This site does not feature upgradient stormwater. During construction, no pollutant will be present on site, hence BMPs for upgradient stormwater are not required.

ATTACHMENT K
BMPs FOR ON-SITE STORMWATER

The following temporary BMPs have been identified on the Erosion Control Plan.

1. Silt Fence
2. Rock Check Dam
3. Stabilized Construction Exit

Onsite water will be directed to the existing creek line through a storm box on site. Vegetative Filter Strips will be used as permanent BMPs along the edge of the road. This will allow the stormwater to pass through before entering the creek.

**TSS Removal Calculation for Texas Commission on Environmental Quality **
Project Name: Liberty Hill 15
Date Prepared: September 06,2023

Vegetative Filter Strips(VFS) is the BMP selected for treatment of stormwater runoff.

Calculations from RG-348 (Pages 3-27

1. The required TSS removal is calculated from:

$$L_M = 27.2(A_N \times P)$$

Where:

L_M = Required TSS removal, pounds

A_N = Net increase in impervious area for the project, acres (0.96 acres)

P = Average Annual Precipitation, inches (32 in for Willamson county)

Consequently:

$L_{M\ Total\ Project}$ = 27.2 x 0.96 x 32 = 835.58 lbs (For the whole site)

2. Proposed BMP for the site:

   Proposed BMP= Vegetative Filter Strips
   Removal efficiency/ TSS Reduction= 85%

3. The maximum load reduction for this type of BMP is calculated from:

$$L_R = (\text{BMP efficiency}) \times P \times (A_I \times 34.6 + A_P \times 0.54)$$

Where:

L_R = Load removed by BMP, pounds

BMP efficiency = TSS removal efficiency, decimal (0.85 for this BMP)

P = Average Annual Precipitation, inches (32 in for Willamson county)

A_I = Impervious tributary area to the BMP, acres (0.88 acres)

A_P = Pervious tributary area to the BMP, acres (0.51 acres)

Consequently:

L_R = (0.85) x 32 x (0.88 x 34.6 + 0.51 x 0.54) = 835.69 lbs

4. Fraction of Annual Runoff to be treated to achieve the required 80% reduction:

$$F = L_M/L_R$$

Where:

F = Fraction of the annual rainfall treated by the BMP

L_M= Required load reduction from Step 1 (835.58 lbs)

L_R = Load removed from Step 3 calculation (835.69 lbs)

Consequently:

F = 835.58 /835.69= 0.99

5. Minimum flowrate:

Q= CIA

Where

I = 1.1 in/hr

A = 1.39 acres

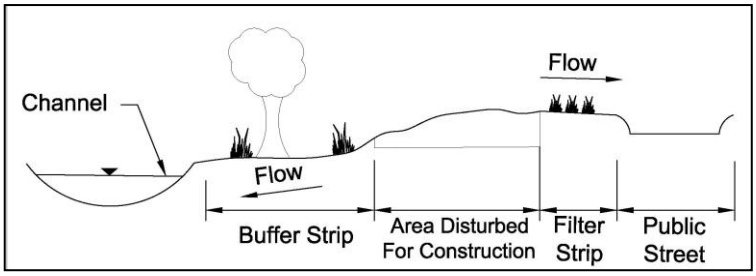
C= Runoff coefficient for the tributary area (0.58, with C_I= 0.90 and C_P=0.03)

Q= CIA=0.58 x 1.1 x 1.39 = 0.88 cfs

Therefore the minimum flowrate required to obtain the 80% removal for the site with the selected BMP (VFS) is 0.88 cfs.

3.15 Vegetated Filter Strips and Buffers

Sediment Control



Description: Buffer strips (existing vegetation) and filter strips (planted vegetation) are sections of vegetated land adjacent to disturbed areas. They are designed with low slopes to convey sheet flow runoff from disturbed areas, resulting in the removal of sediment and other pollutants as the runoff passes through vegetation and infiltration occurs.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Minimum width (direction of flow across the vegetation) dependent on slope of disturbed area
- Maximum ratio of disturbed area to vegetated area dependent on slope
- Existing vegetation must meet criteria for type and coverage
- Dense grass required for planted vegetation
- Demarcate limits of vegetation and protect from traffic

ADVANTAGES / BENEFITS:

- Effective secondary control for removing clay particles
- Disperses flow and slows velocities to decrease erosion potential in receiving water
- Preserves the character of existing riparian corridor
- May become part of the permanent stormwater controls

DISADVANTAGES / LIMITATIONS:

- Appropriate as a primary control only for drainage areas of 2 acres or less and under certain site conditions
- Maximum 150 feet of flow to vegetated strip or buffer is used as a primary control
- Cannot treat large volumes or concentrated flows
- Not effective as a perimeter control when the perimeter cuts across contours instead of following contours
- Must limit access to vegetated portion of the site

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Rake accumulations of sediment from the vegetation
- Repair bare areas

TARGETED POLLUTANTS

- ● Sediment
- ◒ Nutrients & Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

Perimeter Control
Slope Protection
Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.35-0.85
(*Depends on many conditions in addition to soil type*)

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ○ Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Other Considerations:

- *Coordination with final landscaping*

3.15.1 Primary Use

Vegetated filter strips and buffers are used to reduce the velocity of sheet flow and reduce the volume of runoff through infiltration. In the process, sediment is removed as the runoff is filtered through the vegetation and infiltration occurs.

Vegetated filter strips and buffers are frequently used a secondary sediment control, since their performance is highly variable. They may be used as a primary sediment control only for small areas and under select site conditions.

3.15.2 Applications

Vegetated buffers are most applicable on development projects that are adjacent or near to floodplains, wetlands, streams and other natural waterways. Vegetated strips may be established along roads and property lines as a perimeter control for development. They are also applicable along the down slope side of utility line projects.

Vegetated buffers may be a primary sediment control for small areas where the conditions meet design criteria. They are also commonly used as a secondary control with other perimeter controls to provide higher levels of sediment removal. Vegetated areas have more capability to remove fine particle sizes than many conventional sediment controls. Combinations such as an organic filter tube or silt fence at the upslope edge of a vegetated strip are very effective.

In addition to perimeter control, vegetated strips are applicable for slope protection. Strips may be established at regular intervals to interrupt long or steep slopes. The strips maintain sheet flow, decrease velocities, and decrease erosion on the slopes.

3.15.3 Design Criteria

Vegetated buffers should be preserved along existing floodplains, wetlands, channels, and other natural waters whenever possible, even when the buffer is not a primary sediment control. Check for local requirements, as many municipalities mandate a vegetated buffer to maintain the character of the riparian corridor along a natural waterway. Vegetated buffers are encouraged to protect existing waterways by decreasing velocities, dispersing flow, and attenuating volume before the runoff reaches the waterway. If the development plans necessitate disturbing the riparian corridor, phase the development (when possible) to retain a vegetated buffer until final grading and landscaping at the end construction.

The evaluation and use of vegetated strips and buffers for use as a sediment control are unique to each site. The designer should carefully consider slope, vegetation, soils, depth to impermeable layer, depth to ground water, and runoff sediment characteristics before specifying a vegetated strip or buffer as a primary sediment control. This consideration is especially true for buffer strips of existing vegetation. If the buffer is not correctly planned, the first storm event can damage the natural vegetation beyond repair.

Design criteria in this section are only applicable when a vegetated strip or buffer is intended to be a primary or secondary sediment control for the construction site. As discussed above, a vegetated buffer may be preserved for other reasons that do not necessitate the use of these criteria if other sediment controls are provided for the construction site.

General

- Maximum slope of the vegetated strip or buffer shall be 5% across the width of the vegetation in the direction of flow.
- To maintain sheet flow, maximum distance of flow to the vegetated filter shall be 150 feet.
- Vegetated buffers and strips may only serve as a primary sediment control when the contributing drainage area has a slope of 15% or less. On steeper slopes, another perimeter control (e.g. organic filter tube, silt fence) may be installed at the upslope edge of the vegetated buffer or strip as a primary control, with the vegetation serving as a secondary control.

- Maximum disturbed area contributing runoff to the vegetated strip or buffer shall be 2 acres.
- Vegetated filter strips and buffers shall be a minimum of 15 feet wide. Width shall be increased based on the slope of the disturbed area as shown in the following table. Although the slope of the disturbed area may be up 15%, the slope of the vegetated strip or buffer is still limited to 5% maximum if used as a primary control for sediment.

Table 3.10 Sizing of Vegetated Buffers and Strips

Maximum Slope of Contributing Drainage Area	*Maximum Ratio of Disturbed Area to Vegetated Area*	*Minimum Width of Vegetated Area (Direction of Flow)*
5%	8:1	15 feet
10%	5:1	30 feet
15%	3:1	50 feet

- Access to vegetated buffers and strips shall be prohibited. These areas shall be protected from all traffic. No activities should occur in these areas, including no parking of the workers' vehicles, no eating of lunch, etc.
- Install controlled and stabilized ingress/egress points to manage traffic and direct it away from vegetation. Fence the vegetation or provide other means of protection to prevent vehicles and equipment from driving on the vegetated areas.
- Vegetated buffers and filter strips should not be used when high ground water, shallow depth to bedrock, or low soil permeability will inhibit infiltration of runoff.

Buffers of Existing Vegetation

- Fencing, flagged stakes spaced at a maximum of 6 feet, or other measures shall be used to clearly mark existing vegetation that is being preserved as a buffer before the start of any clearing, grubbing, or grading.
- Existing vegetation must be well established to be used as a vegetated buffer. It may be a mix of trees, sapling/shrubs, vines and herbaceous plants. However, the herbaceous plants shall cover at least 80 percent of the ground area.
- Bare soil shall not be visible within the buffer. Area between herbaceous plants shall be covered with a natural litter of organic matter (e.g. leaves, dead grass).
- Lots with a thick stand of existing grasses may preserve strips of the grasses as perimeter control in addition to using vegetation as a buffer along a natural waterway.

Strips of Planted Vegetation

- Vegetated strips should only be used when the site perimeter is along (parallel to) contours. Erosion of the vegetated strip will be a problem when the strip is placed along roads or site perimeters that cut across contours, resulting in runoff flowing along, instead of across, the filter strip.
- Minimize vehicle and equipment traffic and other activities that could compact soils on areas that will be planted for vegetated strips.
- Sod is required when the strip is intended to immediately function as a sediment control.
- Erosion control blankets (ECBs) should be used to prevent erosion and provide sediment control while establishing vegetation for a filter strip. If ECBs are not used, than another perimeter control is required until the vegetation is mature. Refer to *Section 2.3 Erosion Control Blankets*.
- Refer to the *Section 2.9 Vegetation* for criteria on establishing vegetation.
- When using vegetated strips for slope protection, spacing of the strips should be designed based on

slope steepness and type of soil. The strips may be planted directly on the slope grade when the slope is flatter than 2:1. For slopes of 2:1 and steeper, vegetation should be established on terraces. Terraces shall have a transverse slope of 1 percent in the opposite direction of the slope (i.e. back into the ground).

3.15.4 Design Guidance and Specifications

Guidance for analysis of the hydraulic loading on filter strips is in *Section 13.3 of the Stormwater Controls Technical Manual*.

No specification for vegetated filter strips and buffers is currently available in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments.

3.15.5 Inspection and Maintenance Requirements

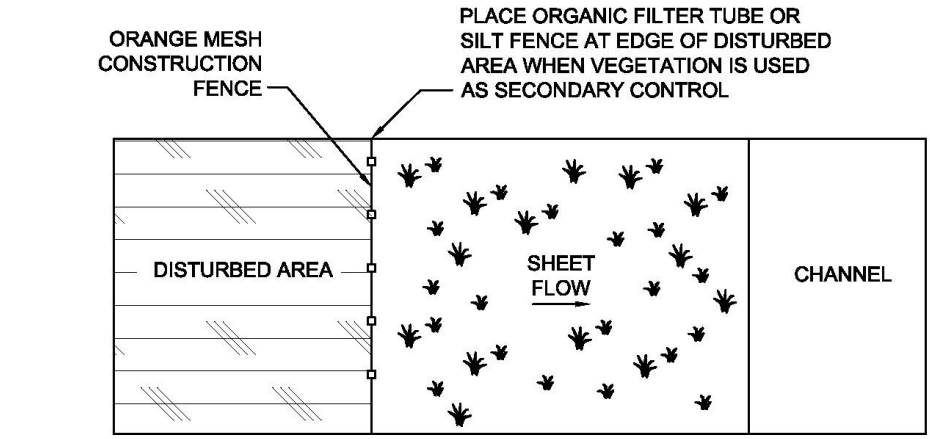
Vegetated filter strips and buffers should be inspected regularly (at least as often as required by the TPDES Construction General Permit). If rill erosion is developing, additional controls are needed to spread the flow before it enters the vegetated area. Rake light accumulations of sediment from the vegetation. Remove trash that accumulates in the vegetation. Additional sediment controls (e.g. a line of organic filter tubes or silt fence), are needed if sediment accumulations are large enough to bury the vegetation.

Inspect established planted vegetation for bare areas and place sod or install seeded erosion control blankets, as appropriate. Mow as needed after planted vegetation is mature.

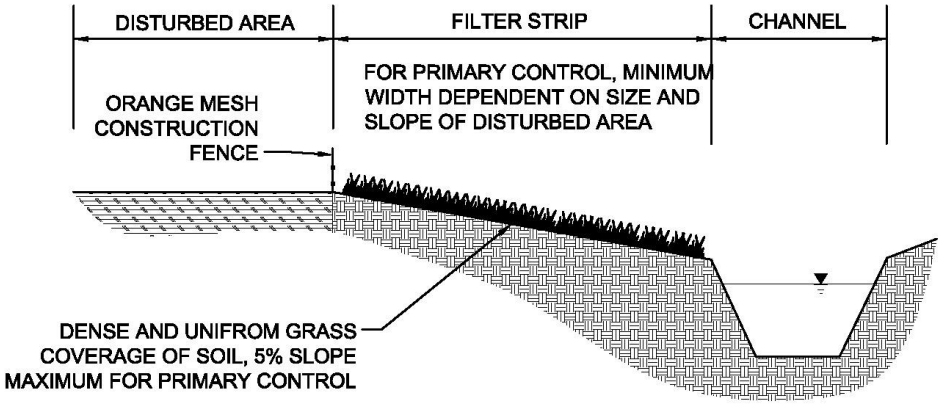
3.15.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



VEGETATED FILTER STRIP PLAN VIEW
N.T.S.



VEGETATED FILTER STRIP PROFILE VIEW
N.T.S.

Figure 3.40 Schematics of Vegetated Filter Strip

ATTACHMENT L
BMPS FOR SURFACE STREAM

The soil stabilization activities are expected to occur according to the following timeline:

Silt fencing will be installed prior to land disturbance – 1 day
Site grading – 2 weeks
Throughout site grading, temporary stabilization will occur as needed using BMPs such as watering, erosion control blankets, and/or temporary vegetation – as needed
Establish permanent vegetation or provide alternative permanent BMP to ensure stabilization – 2-6 weeks

During construction, no pollutants will be present on site. For sediment control, silt fences, temporary sediment control BMPs, construction exits, and rock check dams will be provided. The silt fences are placed along the limits of construction downstream of the project to prevent sediment from leaving the site. Silt fences have also been provided on the northeast portion of the disturbed soil to contain potential runoff within the limits of disturbance.

As the impervious area being proposed is less than 20 percent of the overall site, there will not be any significant change in the water quality of the site. Hence, the water entering the Edwards Aquifer will not cause adverse impacts to the aquifer.

ATTACHMENT M
CONSTRUCTION PLANS

Reference the attached Construction plans and TCEQ Construction Notes.

Texas Commission on Environmental Quality
Contributing Zone Plan
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director (ED), nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code (TAC), Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the ED, the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, TAC, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the ED's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, TAC § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the ED to any part of Title 30 TAC, Chapters 213 and 217, or any other TCEQ applicable regulation

1. A written notice of construction must be submitted to the TCEQ regional office at least 48 hours prior to the start of any ground disturbance or construction activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

2. All contractors conducting regulated activities associated with this project should be provided with complete copies of the approved Contributing Zone Plan (CZP) and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractor(s) should keep copies of the approved plan and approval letter on-site.

3. No hazardous substance storage tank shall be installed within 150 feet of a water supply source, distribution system, well, or sensitive feature.

4. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. If inspections indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations. These controls must remain in place until the disturbed areas have been permanently stabilized.

5. Any sediment that escapes the construction site must be collected and properly disposed of before the next rain event to ensure it is not washed into surface streams, sensitive features, etc.

6. Sediment must be removed from the sediment traps or sedimentation basins when it occupies 50% of the basin's design capacity.

7. Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from being discharged offsite.

8. All excavated material that will be stored on-site must have proper E&S controls.

9. If portions of the site will have a cease in construction activity lasting longer than 14 days, soil

stabilization in those areas shall be initiated as soon as possible prior to the 14th day of inactivity. If activity will resume prior to the 21st day, stabilization measures are not required. If drought conditions or inclement weather prevent action by the 14th day, stabilization measures shall be initiated as soon as possible.

10. The following records should be maintained and made available to the TCEQ upon request:
    - the dates when major grading activities occur;
    - the dates when construction activities temporarily or permanently cease on a portion of the site; and
    - the dates when stabilization measures are initiated.

11. The holder of any approved CZP must notify the appropriate regional office in writing and obtain approval from the executive director prior to initiating any of the following:

    A. any physical or operational modification of any best management practices (BMPs) or structure(s), including but not limited to temporary or permanent ponds, dams, berms, silt fences, and diversionary structures;

    B. any change in the nature or character of the regulated activity from that which was originally approved;

    C. any change that would significantly impact the ability to prevent pollution of the Edwards Aquifer; or

    D. any development of land previously identified as undeveloped in the approved contributing zone plan.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

PERMIT PLANS FOR THE CONSTRUCTION OF

PAVING, GRADING
& DRAINAGE IMPROVEMENTS

TO SERVE

LIBERTY HILL 35
PRIVATE ACCESS DRIVEWAY

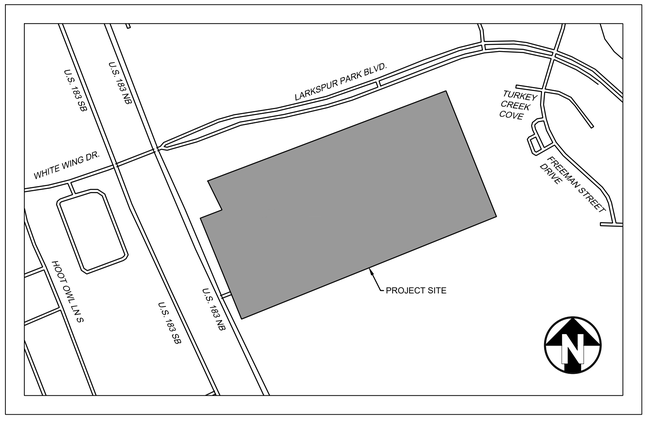
2081 N US HWY 183, LEANDER, TX 78641
THE CITY OF LIBERTY HILL ETJ,
WILLIAMSON COUNTY, TEXAS

OWNER/DEVELOPER:
AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TEXAS 75035
PHONE: (512) 761 - 8025
CONTACT: MALLIK GILAKATTULA
mallik@theprimedeveloper.com

OWNER/DEVELOPER:
CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE.,SUITE 1545
DALLAS, TEXAS 75206
PHONE: (214) 435 - 7510
CONTACT: LANGFORD STUBER
langford@chalkhillventures.com

ENGINEER:
KIRKMAN ENGINEERING, LLC
1130 COTTONWOOD CREEK TRAIL, SUITE C3
CEDAR PARK, TX 78613
PHONE: (512) 428-8586
CONTACT: SHEA KIRKMAN, P.E.
shea.kirkman@trustke.com

SURVEYOR:
BARTON CHAPA SURVEYING
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
PHONE: (817) 864 - 1957
CONTACT: JACK BARTON, RPLS
jack@bcsdfw.com



VICINITY MAP
SCALE: 1" = 500'

SHEET LIST TABLE

kirkman ENGINEERING
TEXAS FIRM NO. 15874

11/27/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

PROJECT NO. CHV20001

NOVEMBER 2023

PLANS FOR THE CONSTRUCTION OF WATER, SANITARY SEWER, PAVING, GRADING & DRAINAGE IMPROVEMENTS TO SERVE: SPUR CREEK BOULEVARD

FILE PATH: K:\Jobs\CHV20001_LibertyHill135\Drawings\07_CORRIDOR PLANS\03 - Production\K:\Jobs\CHV20001_LibertyHill135\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C1.0 COVER

FILENAME: CHV20001_C1.0 COVER.dwg
PLOTTED BY: Prabhanjika Gautam
PLOTTED ON: Monday, November 27, 2023
PLOTTED AT: 4:39:57 PM
PLOTTED WITH: DWG To PDF.pmp.pc3

SURVEYOR'S NOTES:

1. Bearings are based on the State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83), distances are surface with a combined scale factor of 1.00011.
2. This property lies within Zone "X" & Zone "A" of the Flood Insurance Rate Map for Williamson County, Texas and Incorporated Areas, map no. 48491C0275E, with an effective date of September 26, 2008, via scaled map location and graphic plotting.
3. Monuments are found unless specifically designated as set.
4. Elevations (if shown) are North American Vertical Datum of 1988 (NAVD '88).

NOTE REGARDING UTILITIES

Source information from plans and markings will be combined with observed evidence of utilities pursuant to Section 5.E.iv. to develop a view of the underground utilities. However, lacking excavation, the exact location of underground features cannot be accurately, completely, and reliably depicted. In addition, in some jurisdictions, 811 or other similar utility locate requests from surveyors may be ignored or result in an incomplete response, in which case the surveyor shall note on the plat or map how this affected the surveyor's assessment of the location of the utilities. Where additional or more detailed information is required, the client is advised that excavation and/or a private utility locate request may be necessary.

Utility locations are per observed evidence and the below sources

DigTess - Ticket #2060145311

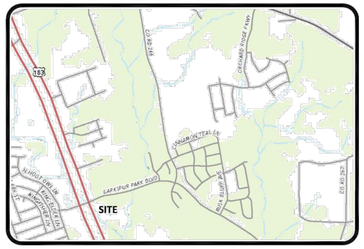
LEGEND OF ABBREVIATIONS

D.R.W.C.T.	DEED RECORDS, WILLIAMSON COUNTY, TEXAS
P.R.W.C.T.	PLAT RECORDS, WILLIAMSON COUNTY, TEXAS
O.P.R.W.C.T.	OFFICIAL PUBLIC RECORDS, WILLIAMSON COUNTY, TEXAS
INST. NO.	INSTRUMENT NUMBER
C.M.	CONTROLLING MONUMENT
SQ. FT.	SQUARE FEET
ROW	RIGHT OF WAY
CRS	CAPPED REBAR SET

SITE BENCHMARKS:

1. The site benchmark is an "X" cut with box set at the northeast corner of a curb inlet in the north line of Larkspur Park Boulevard, and being approximately 175 feet in a southwesterly direction from the southwest corner of the limits of a concrete sidewalk adjacent to the north line of Larkspur Park Boulevard. **ELEVATION=911.62' (NAVD '88)**
2. The site benchmark is an "X" cut with box set on the back of curb the eastern nose of a median dividing Larkspur Park Boulevard, and being approximately 680 feet in an easterly direction from the eastern paving seam line at the intersection of Larkspur Park Boulevard and US Highway 183. **ELEVATION=918.87' (NAVD '88)**

VICINITY MAP - NOT TO SCALE



PROPERTY DESCRIPTION

BEING a tract of land out of the John B. Robinson Survey, Abstract Number 521, in Williamson County, Texas, and being those two tracts of land described by deeds to Vestmont LH 35 Partners, Ltd. as recorded under Instrument Number 2019086110 and Instrument Number 2019086149, Official Public Records of Williamson County, Texas, (O.P.R.W.C.T.), the subject tract being more particularly described by metes and bounds as follows (bearings are based on State Plane Coordinate System, Texas Central Zone (4203) North American Datum of 1983 (NAD '83)):

TITLE COMMITMENT NOTES

This survey was prepared without the benefit of a commitment for title insurance. Therefore, easements, agreements, or other documents, either recorded, or unrecorded may exist that affect the subject property that are not shown on this survey.

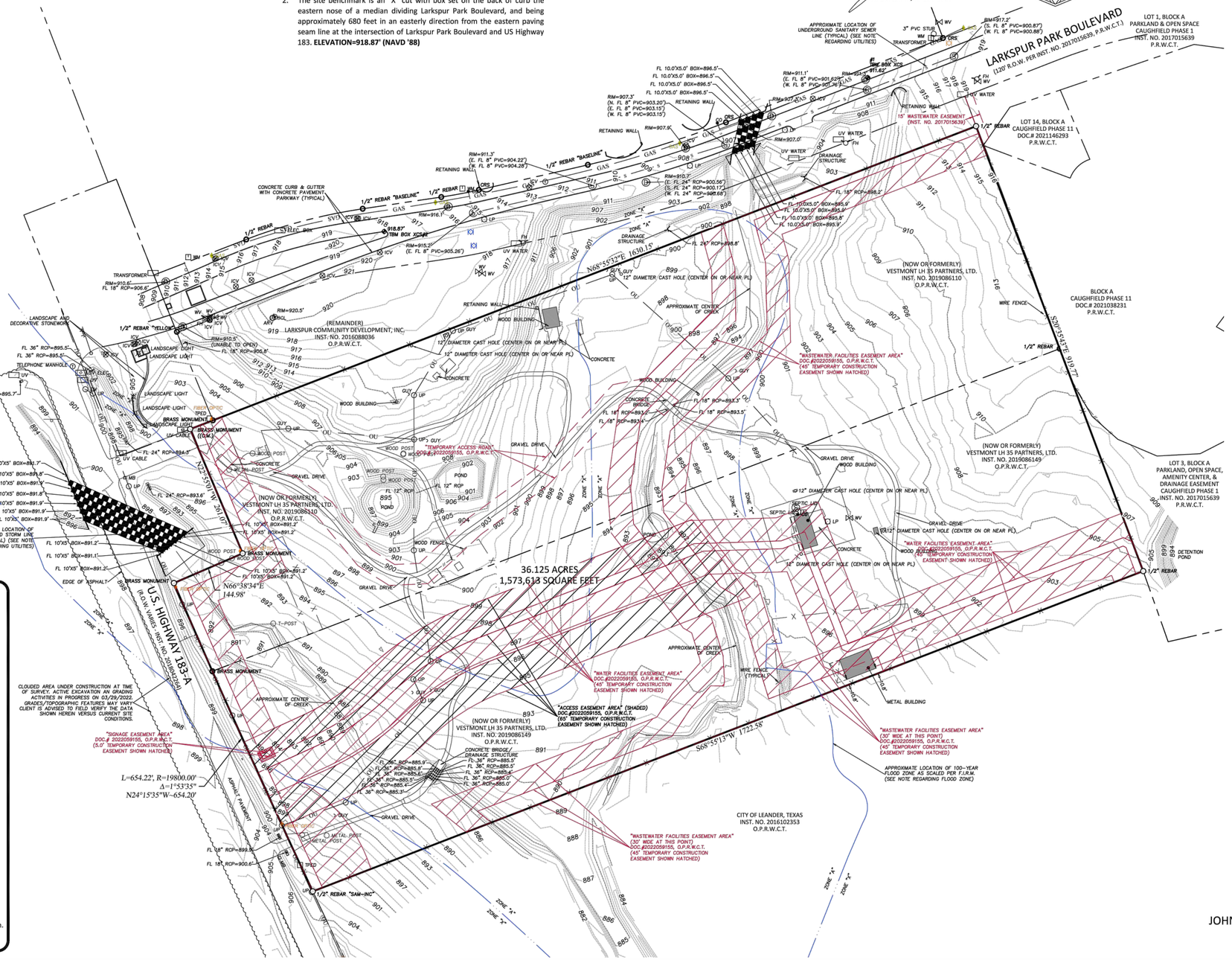
SURVEYOR'S CERTIFICATE

This is to certify that I, John H. Barton III, a Registered Professional Land Surveyor of the State of Texas, have prepared this map from an actual survey on the ground, and that this map correctly represents that survey made by me or under my direction and supervision. Fieldwork was completed on July 13, 2022.

Date of Plat/Map: **July 19, 2022**

John H. Barton III, RPLS# 6737

STATE OF TEXAS · REGISTERED · JOHN HOMER BARTON III · 6737 · PROFESSIONAL · LAND SURVEYOR



LEGEND OF SYMBOLS

- AC air conditioning unit
- ICV irrigation control valve
- CATV cable tv
- EM electric meter
- fence or guardrail
- FDC fire dept. connection
- FH fire hydrant
- BOL bollard
- AD area drain
- GI grate inlet
- GV gas valve
- GM gas meter
- GWELL gas well
- sign
- S sanitary sewer manhole
- D storm water manhole
- T telephone manhole
- TFL tank fill lid
- TPED telephone pedestal
- TSP traffic signal pole
- CO utility clean out
- UCC comm. utility cabinet
- UCE electric utility cabinet
- UVC comm. utility vault
- UVE elect. utility vault
- UVW water utility vault
- UP/SP utility/service pole
- utility sign
- water shutoff
- WV water valve
- well
- WM water meter
- CATV cable tv riser
- ARV air release valve
- utility markings
- tree
- shrub/decorative tree or tree with diameter < 4 in.
- contour lines

TOPOGRAPHIC SURVEY

TRACT OF LAND OUT OF THE JOHN B. ROBINSON SURVEY, ABSTRACT NO. 521 WILLIAMSON COUNTY, TEXAS

BCS
BARTON CHAPA SURVEYING
5200 State Highway 121
Colleyville, TX 76034
Phone: 817-864-1957
info@bcsdfw.com
TBPLS Firm #10194474

JOB NO.	2020.001.131
DRAWN:	BCS
CHECKED:	JHB

TABLE OF REVISIONS

DATE	SUMMARY

MASON TRACT

LEANDER, TEXAS

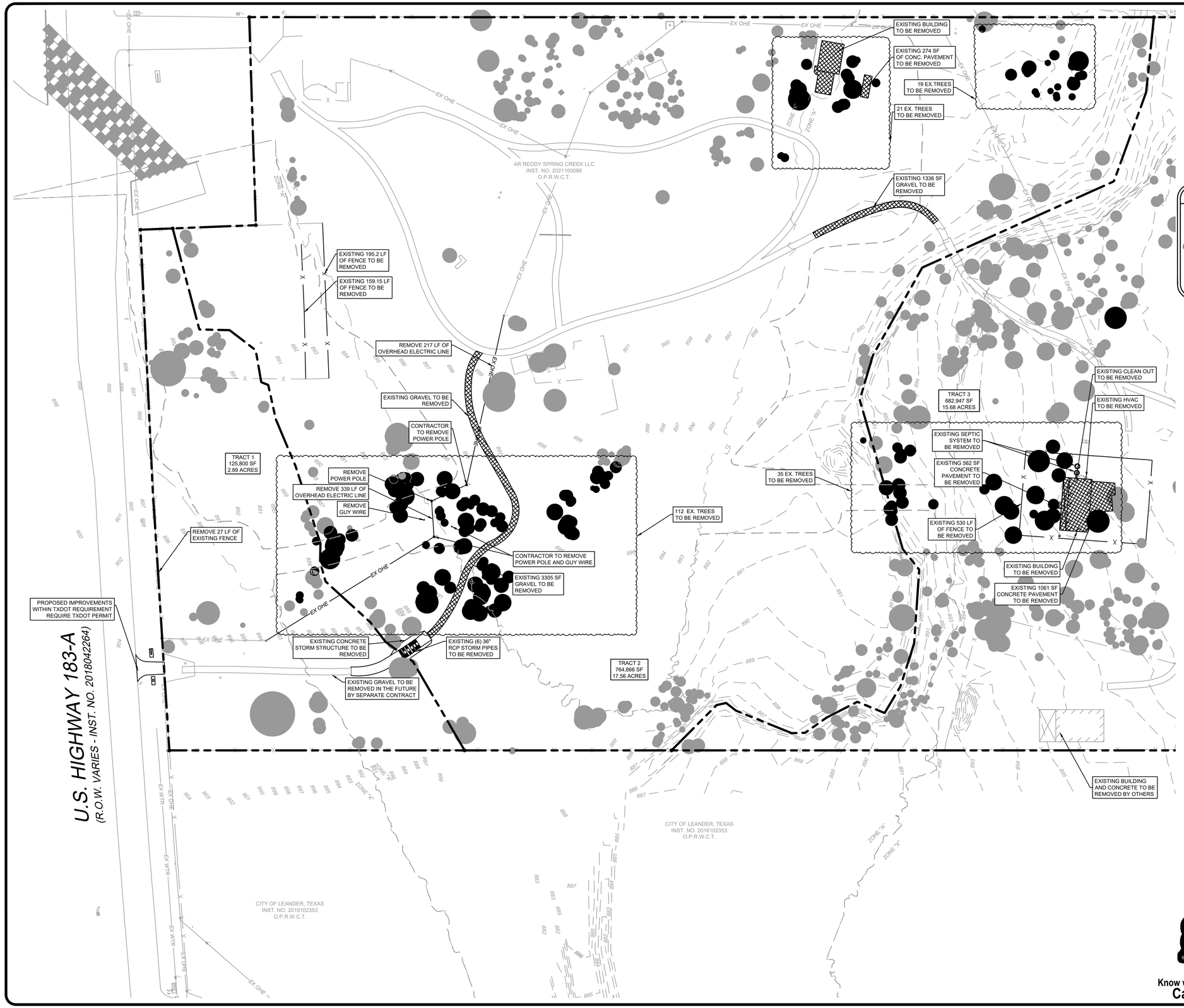
SHEET:

VO1

TOPOGRAPHIC SURVEY

SURVEY PREPARED BY: BARTON CHAPA SURVEYING, LLC 5200 STATE HIGHWAY 121 COLLEYVILLE, TX. 76034 PHONE: 817-864-1957

Z:\Project Data\Survey\001 - Kirkman Engineering\2020\131 - Mason Tract\Drawings



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- REMOVE AND DISPOSE OF ROADWAY PAVEMENT
- PROPOSED FULL DEPTH SAWCUT (PROVIDE CLEAN CONSTRUCTION EDGE)
- EXISTING CONTOUR 500
- PROPERTY BOUNDARY
- SPUR CREEK BOULEVARD R.O.W.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 60 120 FEET
SCALE: 1" = 60'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

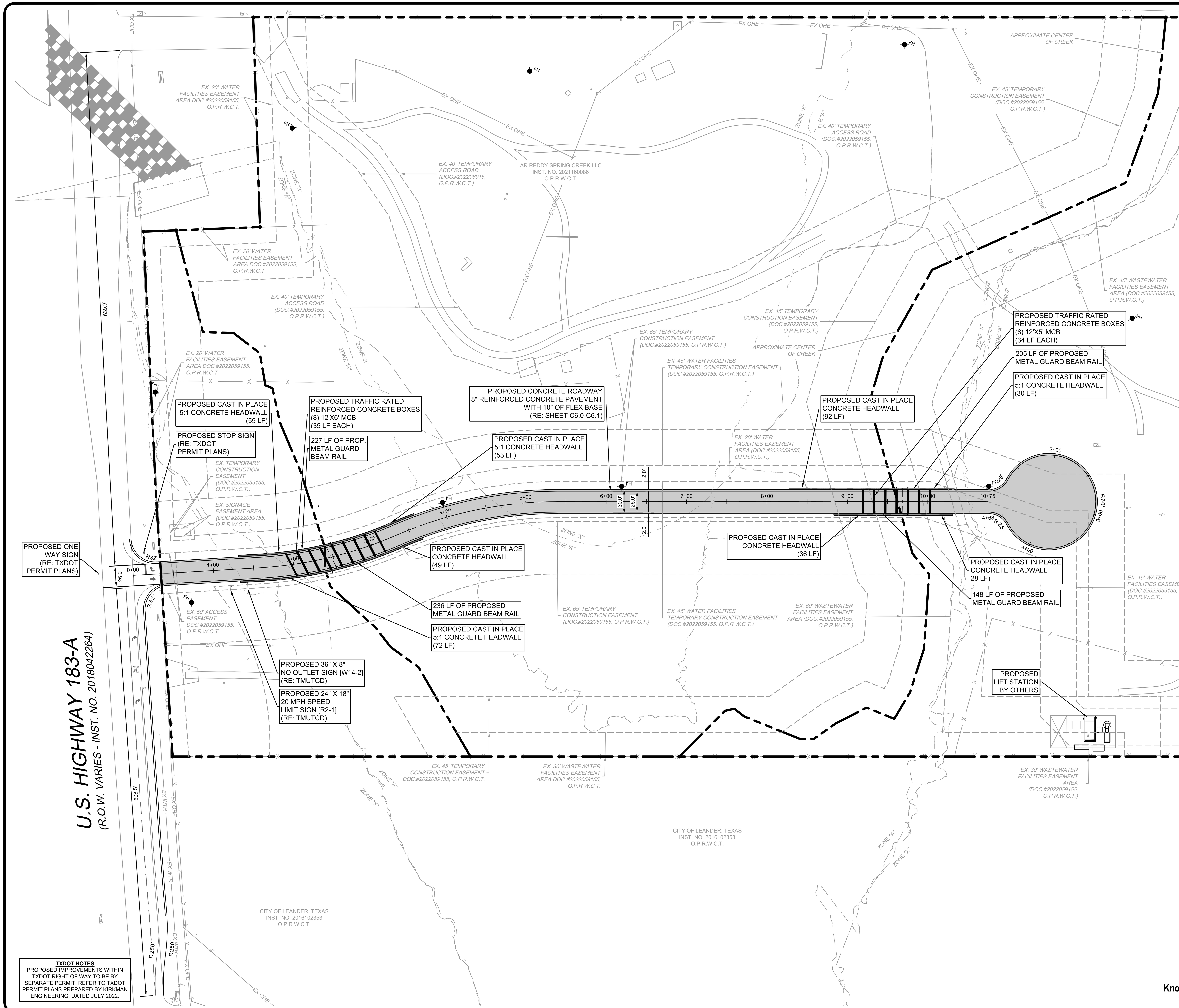
ISSUE DATE: 11/27/2023

DEMOLITION PLAN

SHEET:
C2.0

FILE PATH: K:\Jobs\CHV20001_Liberty Hill\150\drawings\07_CONSTR\DOR PLANS\03 - Production\K:\Jobs\CHV20001_Liberty Hill\150\drawings\07_CONSTR\DOR PLANS\03 - Production\CHV20001_C2.0 DEMOLITION

FILENAME: CHV20001_C2.0 DEMOLITION.dwg
PLOTTED BY: Prashanthini Gautam
PLOTTED DATE: 11/27/2023



TXDOT NOTES
PROPOSED IMPROVEMENTS WITHIN TXDOT RIGHT OF WAY TO BE BY SEPARATE PERMIT. REFER TO TXDOT PERMIT PLANS PREPARED BY KIRKMAN ENGINEERING, DATED JULY 2022.

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

PROPOSED SIGN
PROPERTY BOUNDARY
PROPOSED CORRIDOR

LAYOUT & DIMENSIONAL CONTROL NOTES:

1. BOUNDARY LINES AND EASEMENT: REFER TO THE FINAL PLAT TO VERIFY PROPERTY LINES AND EXISTING EASEMENT LOCATIONS.
2. DIMENSION CONTROL: UNLESS NOTED OTHERWISE, ALL PAVING DIMENSIONS SHOWN ARE TO FACE OF CURB.
3. CURB RADII: UNLESS NOTED OTHERWISE, ALL CURB RADII SHALL BE 3' AT FACE OF CURB.
4. BUILDING DIMENSIONS: REFERENCE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATES PRIOR TO CONSTRUCTION.
6. ALL COORDINATES ARE U.S. SURVEY FEET, NAD '83 SURFACE.

NOTE TO CONTRACTOR
THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE
MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

811 Know what's below. Call before you dig.

GRAPHIC SCALE
0 60 120 FEET
SCALE: 1" = 60'

11/27/2023
STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

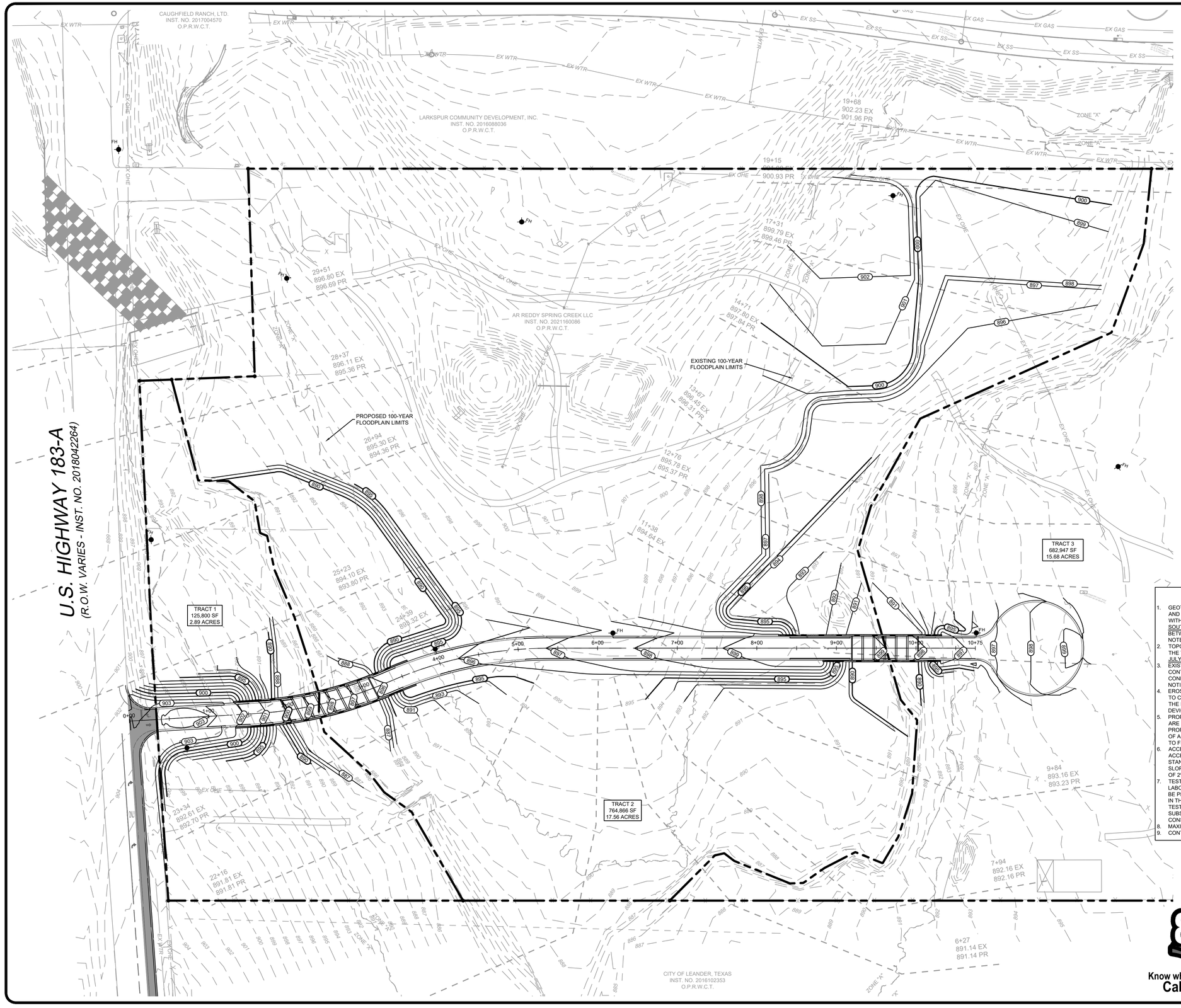
kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

DIMENSIONAL CONTROL PLAN

SHEET:
C3.0

FULL PATH: K:\Jobs\CHV20001_LibertyHill\15\Drawing\07_CORRIDOR PLANS\03 - Production\CHV20001_C4.0 DIMENSIONAL CONTROL PLAN
FILENAME: CHV20001_C4.0 DIMENSIONAL CONTROL PLAN.dwg
PLOTTED BY: [illegible]
PLOTTED DATE: 11/27/2023



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- GRADE BREAK
- PROPOSED SWALE
- PROPOSED FINISHED GRADE — FG 700.00
- PROPOSED TOP OF CURB/GUTTER — TC 700.50 / G 700.00
- PROPOSED TOP OF WALL/ BOTTOM OF WAL — TW 700.00 / BW 699.00
- PROPOSED TOP OF INLET — TI 700.00
- EXISTING SPOT GRADE — *EX. 700.5±*
- EXISTING TOP OF CURB/GUTTER — *TC 700.5± / G 700.0±*
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING DRAINAGE FLOW ARROW
- PROPERTY BOUNDARY
- SPUR CREEK BOULEVARD R.O.W.
- PROPOSED CORRIDOR

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

GRADING NOTES:

1. GEOTECHNICAL REPORT: SITE PREPARATION, GRADING, FILL COMPACTION, AND BUILDING PAD PREPARATION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED FOR THIS PROJECT BY EOS SOUTHWEST, LLC. DATED DECEMBER 21, 2022. IN THE EVENT OF A CONFLICT BETWEEN THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT AND THE NOTES ON THE GRADING PLAN, THE GEOTECHNICAL REPORT SHALL GOVERN.
2. TOPOGRAPHIC SURVEY: TOPOGRAPHIC SURVEY INFORMATION IS BASED ON THE TOPOGRAPHIC SURVEY PREPARED BY BARTON CHAPA SURVEYING, DATED JULY 19, 2022.
3. EXISTING CONDITIONS: PRIOR TO COMMENCING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTING CONDITIONS, INCLUDING GRADES AND DIMENSIONS. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER OF ANY DISCREPANCIES.
4. EROSION CONTROL: EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO COMMENCING CLEARING, STRIPPING AND GRADING OPERATIONS. REFER TO THE EROSION CONTROL PLAN FOR THE SEQUENCE OF EROSION CONTROL DEVICES TO BE INSTALLED.
5. PROPOSED GRADES: THE PROPOSED ELEVATIONS AND CONTOURS SHOWN ARE TO FINISHED GRADE. THE PROPOSED CONTOURS ARE APPROXIMATE. THE PROPOSED SPOT ELEVATIONS AND GRADIENTS ARE TO BE USED IN THE EVENT OF ANY DISCREPANCY WITH THE PROPOSED CONTOURS. MINOR ADJUSTMENT TO FINISH GRADE TO ACCOMPLISH SPOT DRAINAGE IS ACCEPTABLE.
6. ACCESSIBLE ROUTES/PARKING: SIDEWALKS AND CROSSWALKS ALONG ACCESSIBLE ROUTES SHALL BE IN ACCORDANCE WITH TAS AND ADA STANDARDS WITH A MAXIMUM RUNNING SLOPE OF 5% AND A MAXIMUM CROSS SLOPE OF 2%. ACCESSIBLE PARKING SPACES SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS.
7. TESTING: TESTING SHALL BE PERFORMED BY A QUALIFIED TESTING LABORATORY, EMPLOYED AND PAID DIRECTLY BY THE OWNER. TESTING SHALL BE PERFORMED AT A MINIMUM, IN ACCORDANCE WITH THE RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THE RESULTS OF THE INITIAL TESTING DO NOT COMPLY WITH THE PLANS AND SPECIFICATIONS, SUBSEQUENT TESTS NECESSARY TO DETERMINE THE ACCEPTABILITY OF CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE.
8. MAXIMUM SITE SLOPES SHALL BE 4:1 UNLESS OTHERWISE NOTED.
9. CONTRACTOR TO PROVIDE POSITIVE DRAINAGE AWAY FROM ALL BUILDINGS.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE

0 60 120 FEET

SCALE: 1" = 60'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

GRADING PLAN

SHEET:

C4.0

FILE PATH: K:\chv\CHV20001_LibertyHill35\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_CS.R GRADING PLAN.dwg

FILENAME: CHV20001_CS.R GRADING PLAN.dwg
PLOTTED BY: Prashantika Gautam
PLOTTED DATE: 11/27/2023

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- EXISTING DRAINAGE AREA LABEL — BASIN NAME / ACRES / Q100 (cfs) — DA 4 / 1.00 ac.
- EXISTING DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- EXISTING STORM PIPE
- PROPERTY BOUNDARY
- SPUR CREEK BOULEVARD R.O.W.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

DRAINAGE AREA TABLE

DRAINAGE AREA ID	PERVIOUS AREA (SQUARE FOOTAGE)	PERVIOUS AREA (ACREAGE)	IMPERVIOUS AREA (SQUARE FOOTAGE)	IMPERVIOUS AREA (ACREAGE)
DA 1	446,338 SF	10.25 ACRES	15,870 SF	0.36 ACRES
DA 2	1,086,020 SF	24.47 ACRES	25740 SF	0.59 ACRES

DRAINAGE AREA CALCULATIONS (EXISTING)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	10.61	10.0	0.344	4.9	17.9	0.395	7.25	30.4	0.436	8.78	40.6	0.506	11.23	60.3	
DA 2	25.06	10.0	0.340	4.9	41.8	0.391	7.25	71.0	0.431	8.78	94.8	0.501	11.23	141.1	

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER
SURVEYOR

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

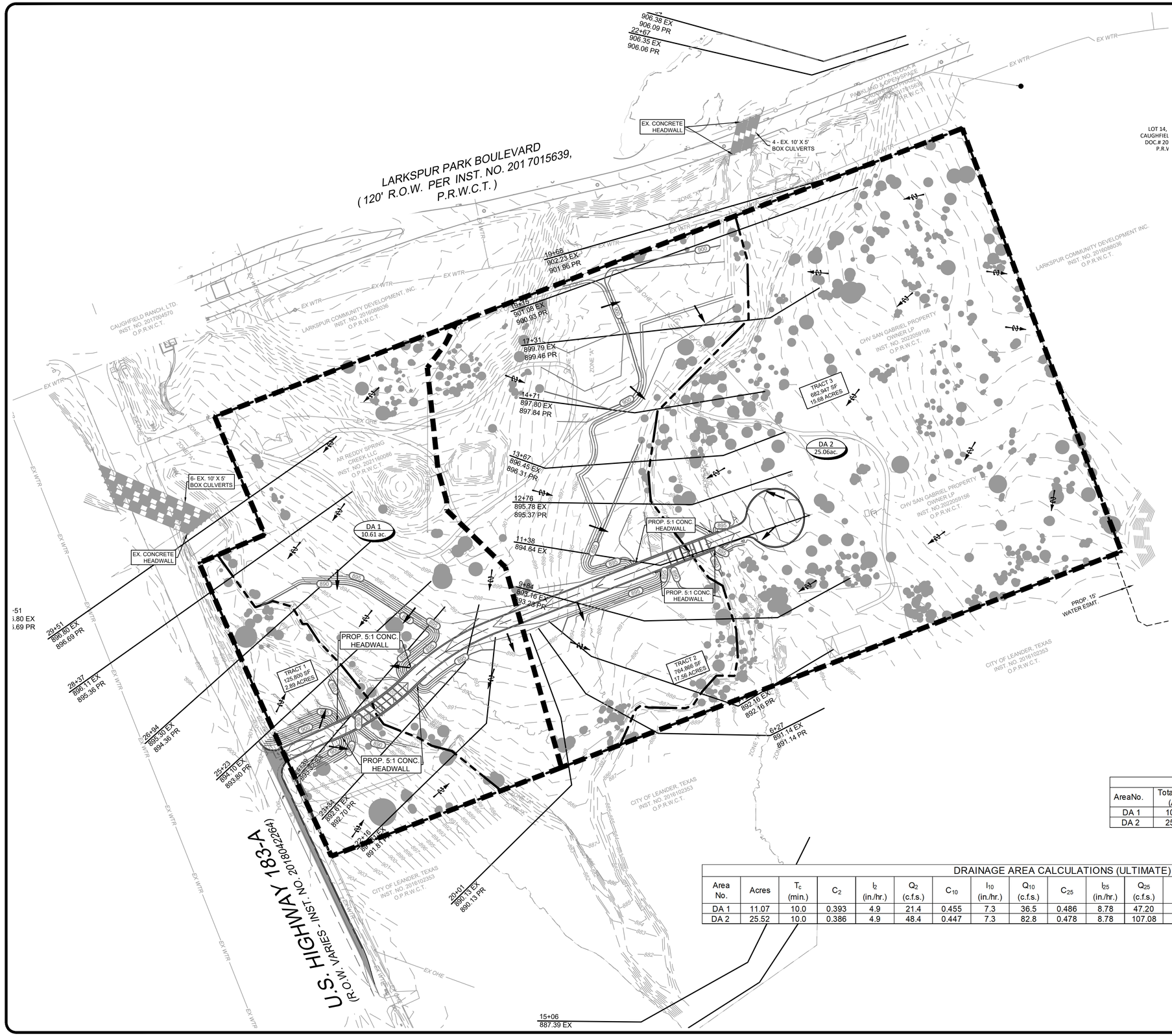
JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

EXISTING DRAINAGE AREA MAP

SHEET:
C5.0

FILENAME: CHV20001_C5.0 EXISTING DRAINAGE AREA MAP.dwg
PLOTTED BY: Preston'Isa Gaulden
PLOTTED DATE: 11/27/2023

FILE PATH: K:\Jobs\CHV20001_LibertyHill135\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C5.0 EXISTING DRAINAGE AREA MAP.dwg



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- PROPOSED DRAINAGE AREA LABEL — BASIN NAME / ACRES / Q100 (cfs) — DA 4 / 1.00 ac.
- PROPOSED DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- PROPOSED CONTOUR — 500
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- PROPERTY BOUNDARY

NOTE TO CONTRACTOR

EXISTING PRIVATE AND PUBLIC STORM SEWER AND UTILITY INFRASTRUCTURE ARE SHOWN PER RECORD DRAWING PLANS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

IMPERVIOUS AREA TABLE

AreaNo.	Total area (Ac)	Pervious Area (SF)	Pervious Area (AC)	Impervious Area (SF)	Impervious Area (AC)
DA 1	10.61	433680.33	9.96	28491	0.65
DA 2	25.52	1063961.80	24.43	47689	1.09

DRAINAGE AREA CALCULATIONS (ULTIMATE)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	11.07	10.0	0.393	4.9	21.4	0.455	7.3	36.5	0.486	8.78	47.20	0.557	11.23	69.24	Drains to the creek line
DA 2	25.52	10.0	0.386	4.9	48.4	0.447	7.3	82.8	0.478	8.78	107.08	0.549	11.23	157.28	Drains to the creek line

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

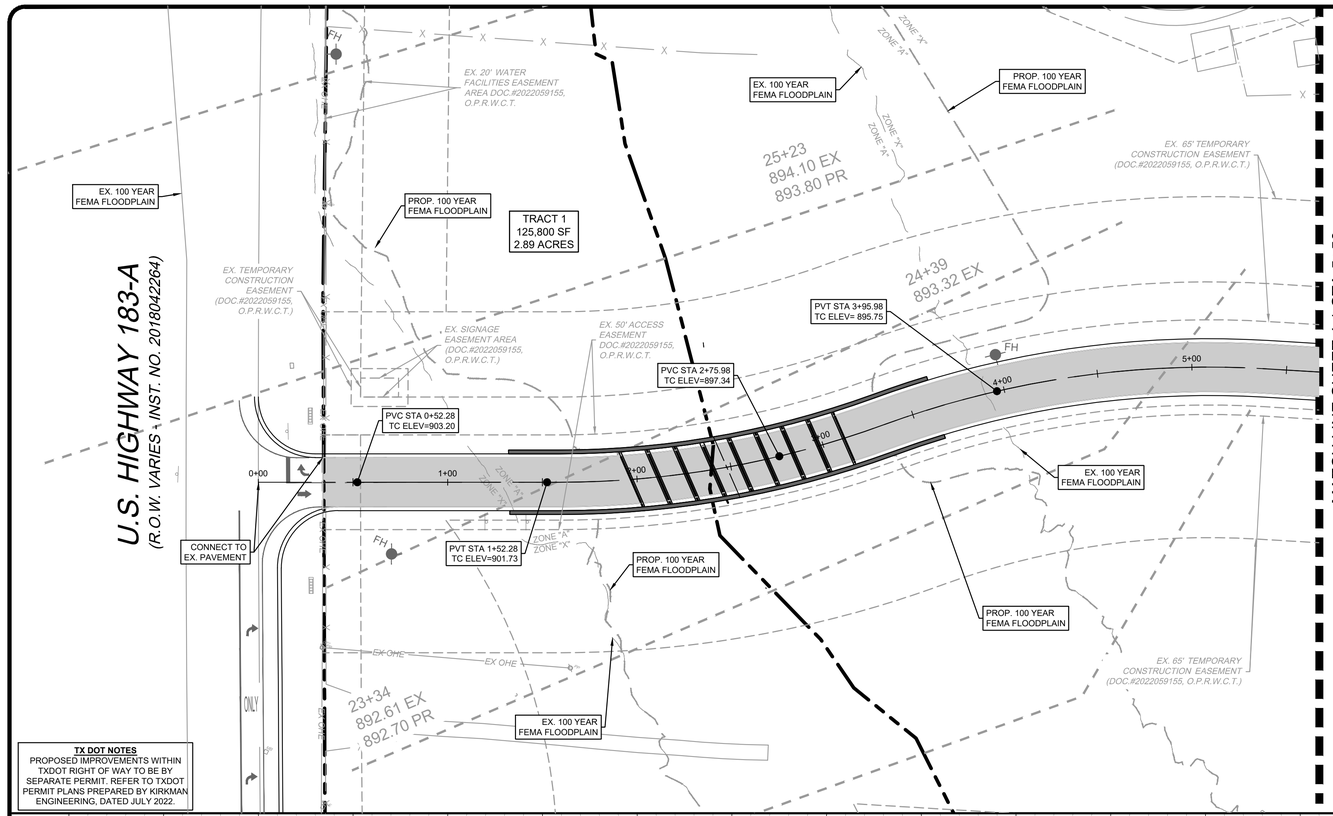
JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

ULTIMATE DRAINAGE AREA MAP

SHEET:
C5.1

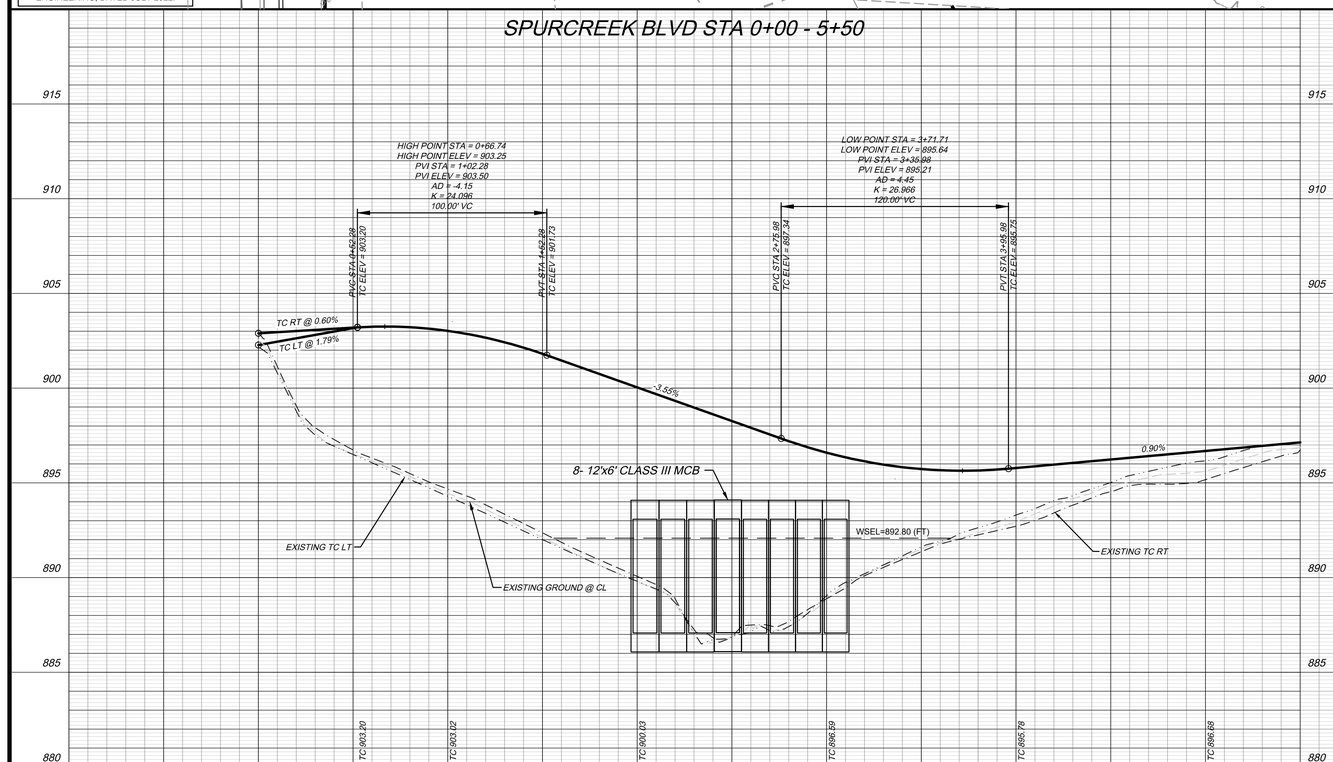
FILENAME: CHV20001_C5.1 PROPOSED DRAINAGE AREA MAP.dwg
PLOTTED BY: Preciosha Gadhia
PLOTTED DATE: 11/27/2023
FILE PATH: K:\Work\CHV20001_Liberty Hill\15\Drawings\07_CONSTRUCTION PLANS\03 - Production\K:\Work\CHV20001_Liberty Hill\15\Drawings\07_CONSTRUCTION PLANS\03 - Production\CHV20001_C5.1 PROPOSED DRAINAGE AREA MAP.dwg



TX DOT NOTES
PROPOSED IMPROVEMENTS WITHIN TXDOT RIGHT OF WAY TO BE BY SEPARATE PERMIT. REFER TO TXDOT PERMIT PLANS PREPARED BY KIRKMAN ENGINEERING, DATED JULY 2022.

SPURCREEK BLVD STA 0+00 - 5+50

HORIZ: 1" = 40'
VERT: 1" = 4'



811 Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 40 80 FEET
SCALE: 1" = 40'

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

PROPOSED ROADWAY
6" CONCRETE PAVEMENT
W/ 2" HMAC AND
8" LIME TREATED SUBGRADE

PROPERTY BOUNDARY

NOTE TO CONTRACTOR
THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE
MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

PAVEMENT NOTE
6" CONCRETE PAVEMENT USED TO BE TXDOT ITEM NO. 360.
2" HMAC USED TO BE TYPE D, TXDOT ITEM NO. 340.
8" LIME TREATED SUBGRADE TO BE TXDOT ITEM NO. 260 W/ HYDRATED LIME PERCENTAGE AS DETERMINED BY LABORATORY TESTING.

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

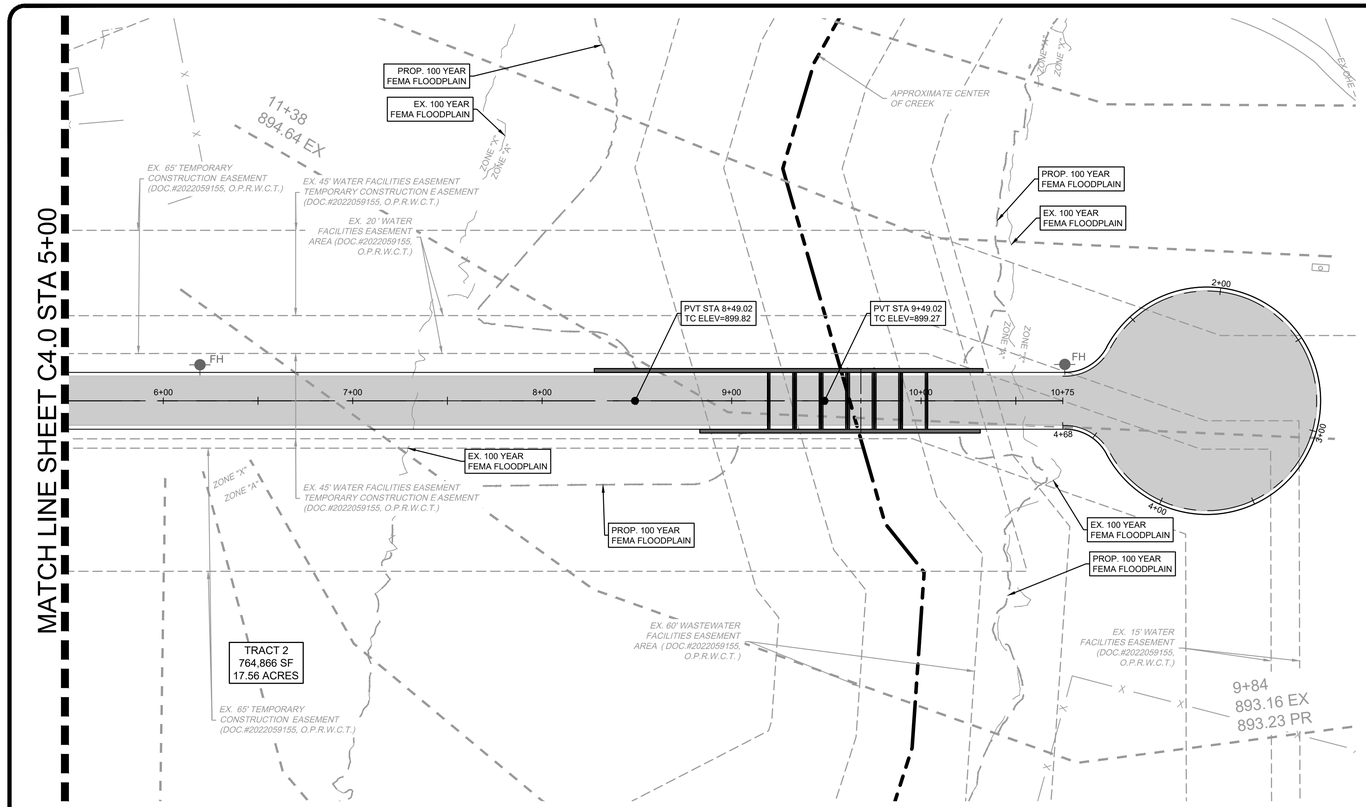
JOB NUMBER: CHV20001

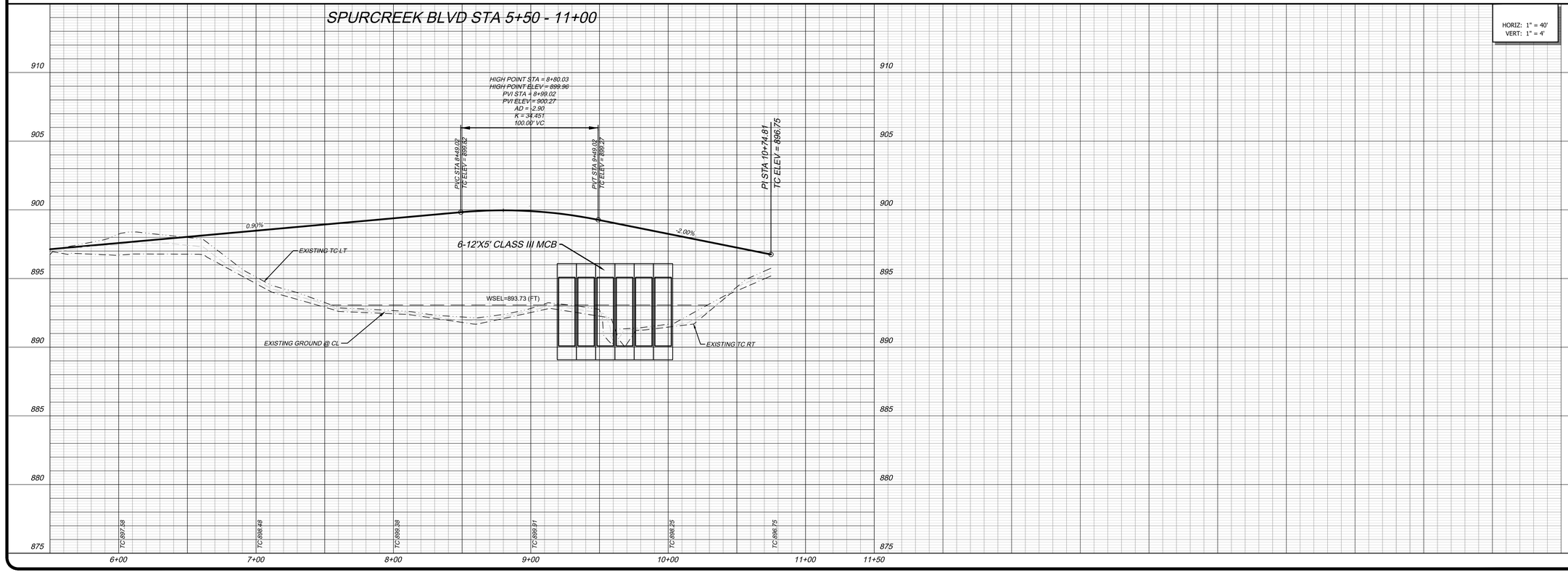
ISSUE DATE: 11/27/2023

PAVING PLAN & PROFILE I

SHEET:
C6.0

FILE PATH: K:\Shr\CHV\20001_LibertyHill\15\Drawings\07_CORRIDOR PLANS\03 - Production\K:\Shr\CHV\20001_LibertyHill\15\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C6.0 PAVING PLAN
FILENAME: CHV20001_C6.0 PAVING PLAN.dwg
PLOTTED BY: Preslonzka Gautam
PLOTTED DATE: 11/27/2023





811
Know what's below.
Call before you dig.

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

GRAPHIC SCALE
0 40 80 FEET
SCALE: 1" = 40'

LEGEND

PROPOSED ROADWAY
6" CONCRETE PAVEMENT
W/ 2" HMAC AND
8" LIME TREATED SUBGRADE

PROPERTY BOUNDARY

NOTE TO CONTRACTOR
THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE
MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

PAVEMENT NOTE
6" CONCRETE PAVEMENT USED TO BE TXDOT ITEM NO. 360.
2" HMAC USED TO BE TYPE D, TXDOT ITEM NO. 340.
8" LIME TREATED SUBGRADE TO BE TXDOT ITEM NO. 260 W/ HYDRATED LIME PERCENTAGE AS DETERMINED BY LABORATORY TESTING.

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

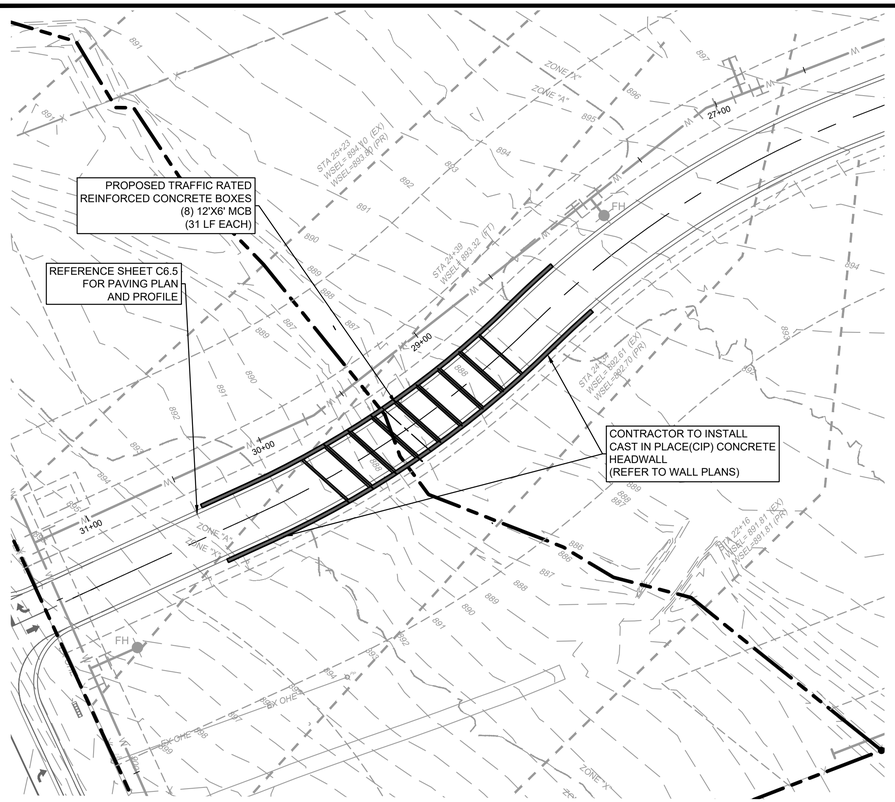
JOB NUMBER: CHV20001

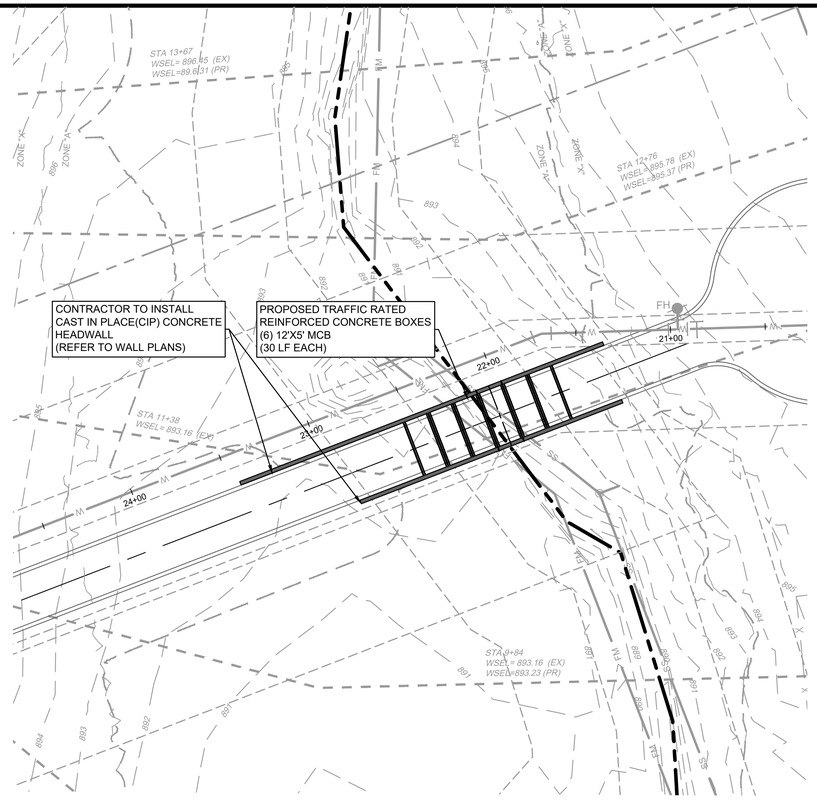
ISSUE DATE: 11/27/2023

PAVING PLAN & PROFILE II

SHEET:
C6.1

FILENAME: CHV20001_C6.0 PAVING PLAN.dwg
FULL PATH: K:\Jobs\CHV20001_LibertyHill15\Drawings\07_CDR\SDDR PLANS\03 - Production\K:\Jobs\CHV20001_LibertyHill15\Drawings\07_CDR\SDDR PLANS\01 - Production\CHV20001_C6.0 PAVING PLAN





SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

GRAPHIC SCALE

0 40 80 FEET

SCALE: 1" = 40'

FLOOD PLAIN NOTE

FEMA FIRM NO: 48491C0275E, SEPTEMBER 26,2008. A PORTION OF THE PROPERTY IS LOCATED WITHIN THE FEMA ZONE A 100-YEAR FLOODPLAIN OF AN UNNAMED TRIBUTARY TO THE SOUTH FORK SAN GABRIEL RIVER. APPROVED LOMR (08-06-1357P, 2/17/2009, IS LOCATED NORTHWEST OF THE PROJECT)

DETENTION NOTE

NO DETENTION REQUIRED FOR THE SITE. REFER TO DOWNSTREAM ASSESSMENT PREPARED BY KCE ENGINEERING, LLC, DATED 04/29/2022

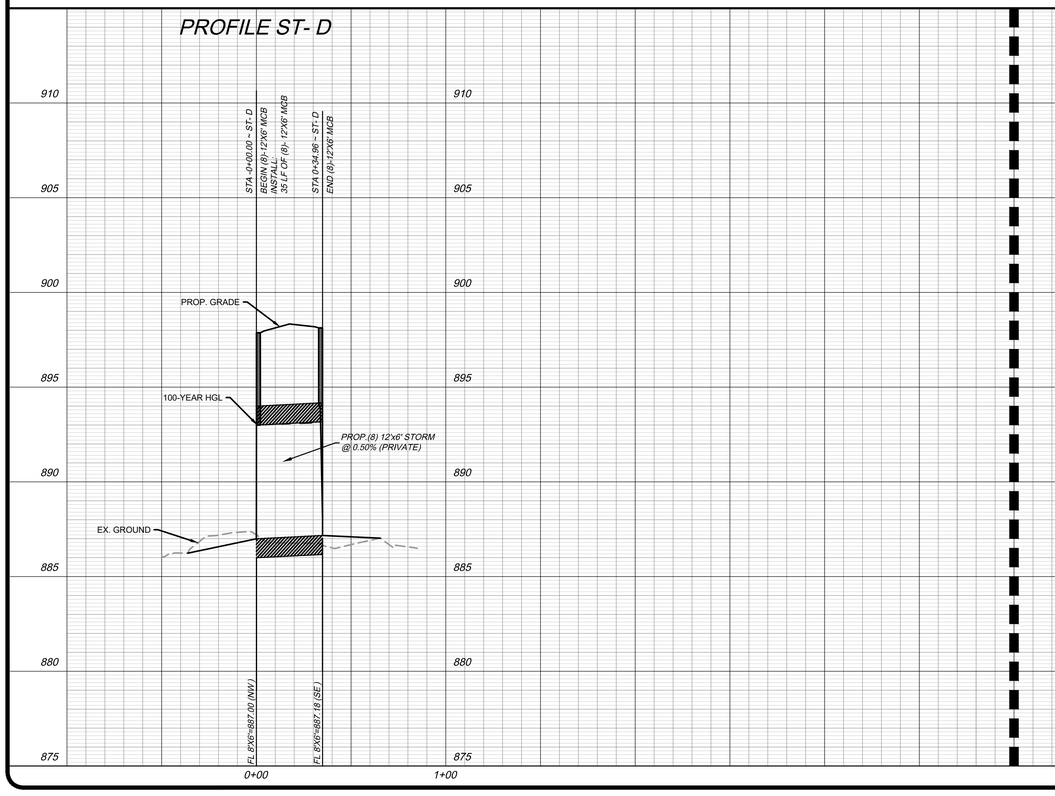
STORM PROFILE NOTE

Q_{cap} REPRESENTS THE PIPE CAPACITY IN FULL FLOW CONDITIONS. Q_{100} MAY EXCEED Q_{cap} WHEN PIPE IS UNDER PRESSURE FLOW CONDITIONS.

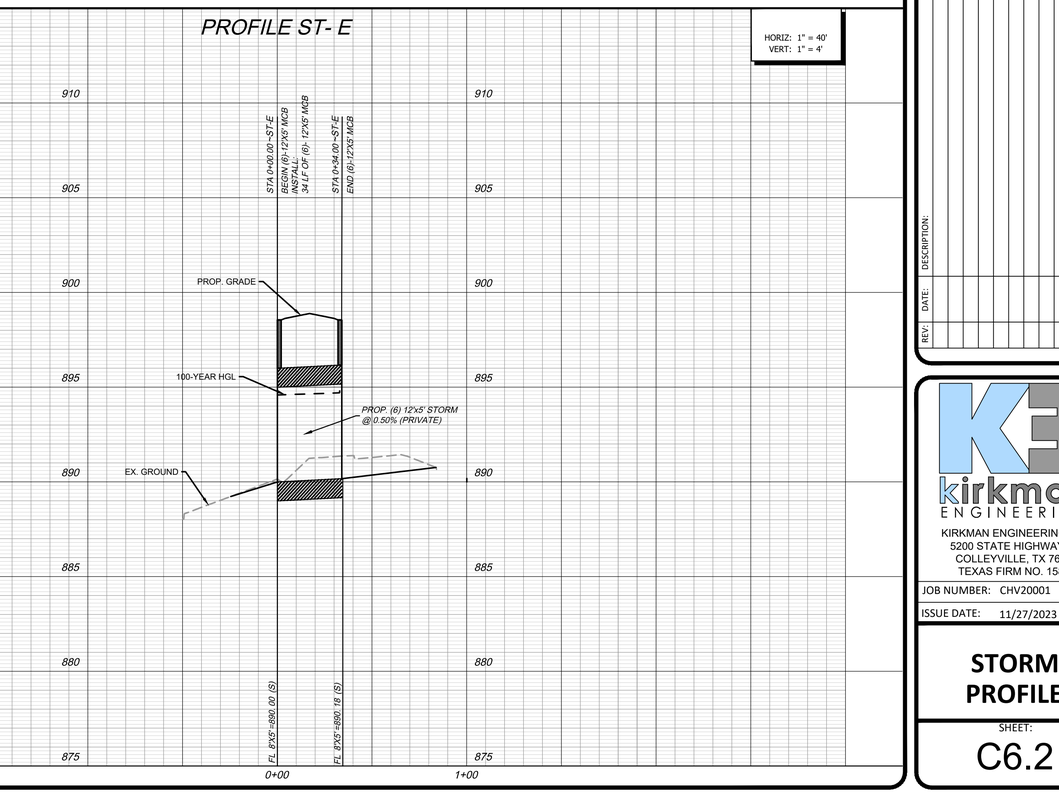
NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

PROFILE ST- D



PROFILE ST- E



HORIZ: 1" = 40'
VERT: 1" = 4'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

STORM PROFILE

SHEET:
C6.2

FULL PATH: K:\Jobs\CHV20001_LibertyHill15\Drawings\07_CORRIDOR PLANS\03 - Production\Work Jobs\CHV20001_LibertyHill15\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C6.2 STORM PLAN.dwg

FILENAME: CHV20001_C6.2 STORM PLAN.dwg

STARTING HGL NOTE:
1. STARTING HGL TAKEN FROM RECORD DRAWINGS BY SPUR CREEK DEVELOPMENT PRIVATE ACCESS DRIVE FLOOD STUDY BY KCE ENGINEERING, LLC DATED 8/17/23.

STORM DRAIN LINE D
HEC-RAS PLAN: PR River A Reach 1

Reach	River Sta	Profile	E.G. US.	W.S. US.	E.G. IC	E.G. OC	Min El Weir Flow	Q Culv Group	Q Weir	Delta WS	Culv Vel US	Culv Vel DS
			(ft)	(ft)	(ft)	(ft)	(ft)	(cfs)	(cfs)	(ft)	(ft/s)	(ft/s)
Reach 1	2425 Culvert #1	2yr	890.36	890.35	889.88	890.36	896.01	1155.00		0.43	4.41	4.12
Reach 1	2425 Culvert #1	10yr	891.88	891.48	891.24	891.88	896.01	2128.00		0.32	5.58	5.32
Reach 1	2425 Culvert #1	25yr	892.77	892.48	892.10	892.77	896.01	2830.00		0.63	6.33	6.09
Reach 1	2425 Culvert #1	100yr	894.06	893.80	893.43	894.06	896.01	4056.00		1.11	7.67	7.42

STORM DRAIN LINE E
HEC-RAS PLAN: PR River B Reach 2

Reach 2	1165 Culvert #1	2yr	892.81	893.33	892.54	892.81	898.01	708.00		1.13	4.60	4.21
Reach 2	1165 Culvert #1	10yr	893.88	893.98	893.70	893.88	898.01	1285.00		1.37	7.65	6.83
Reach 2	1165 Culvert #1	25yr	894.41	894.26	894.41	894.70	898.01	1693.00		1.40	9.11	8.21
Reach 2	1165 Culvert #1	100yr	895.86	895.37	895.49	895.86	898.01	2385.00		2.14	10.21	10.96

DRAINAGE AREA CALCULATIONS (EXISTING)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	10.61	10.0	0.344	4.9	17.9	0.395	7.25	30.4	0.436	8.78	40.6	0.506	11.23	60.3	
DA 2	25.52	10.0	0.340	4.9	42.6	0.390	7.25	72.3	0.431	8.78	96.5	0.501	11.23	143.6	

DRAINAGE AREA CALCULATIONS (ULTIMATE)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	11.07	10.0	0.393	4.9	21.4	0.455	7.3	36.5	0.486	8.78	47.20	0.557	11.23	69.24	Drains to the creek line
DA 2	25.52	10.0	0.386	4.9	48.4	0.447	7.3	82.8	0.478	8.78	107.08	0.549	11.23	157.28	Drains to the creek line

EXISTING WEIGHTED RUNOFF VALUE

DA Area	Total area	Pervious Area (ac)	Impervious Area (ac)	C_2	C_{10}	C_{25}	C_{100}
DA 1	10.61	10.25	0.36	0.344	0.395	0.436	0.5065
DA 2	25.52	24.93	0.59	0.34	0.39	0.431	0.5011

EXISTING C VALUE

C values	C2	C10	C25	C100
Pervious	0.33	0.38	0.42	0.49
Impervious	0.75	0.83	0.88	0.97

PROPOSED WEIGHTED RUNOFF VALUE

Area ID	Total Area	Pervious Area (ac)	Impervious Area (ac)	C_2	C_{10}	C_{25}	C_{100}
DA 1	10.61	9.96	0.65	0.39	0.45	0.49	0.56
DA 2	25.52	24.43	1.09	0.39	0.45	0.48	0.55

PROPOSED C VALUE

C values	C2	C10	C25	C100
Pervious	0.37	0.43	0.46	0.53
Impervious	0.75	0.83	0.88	0.97

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

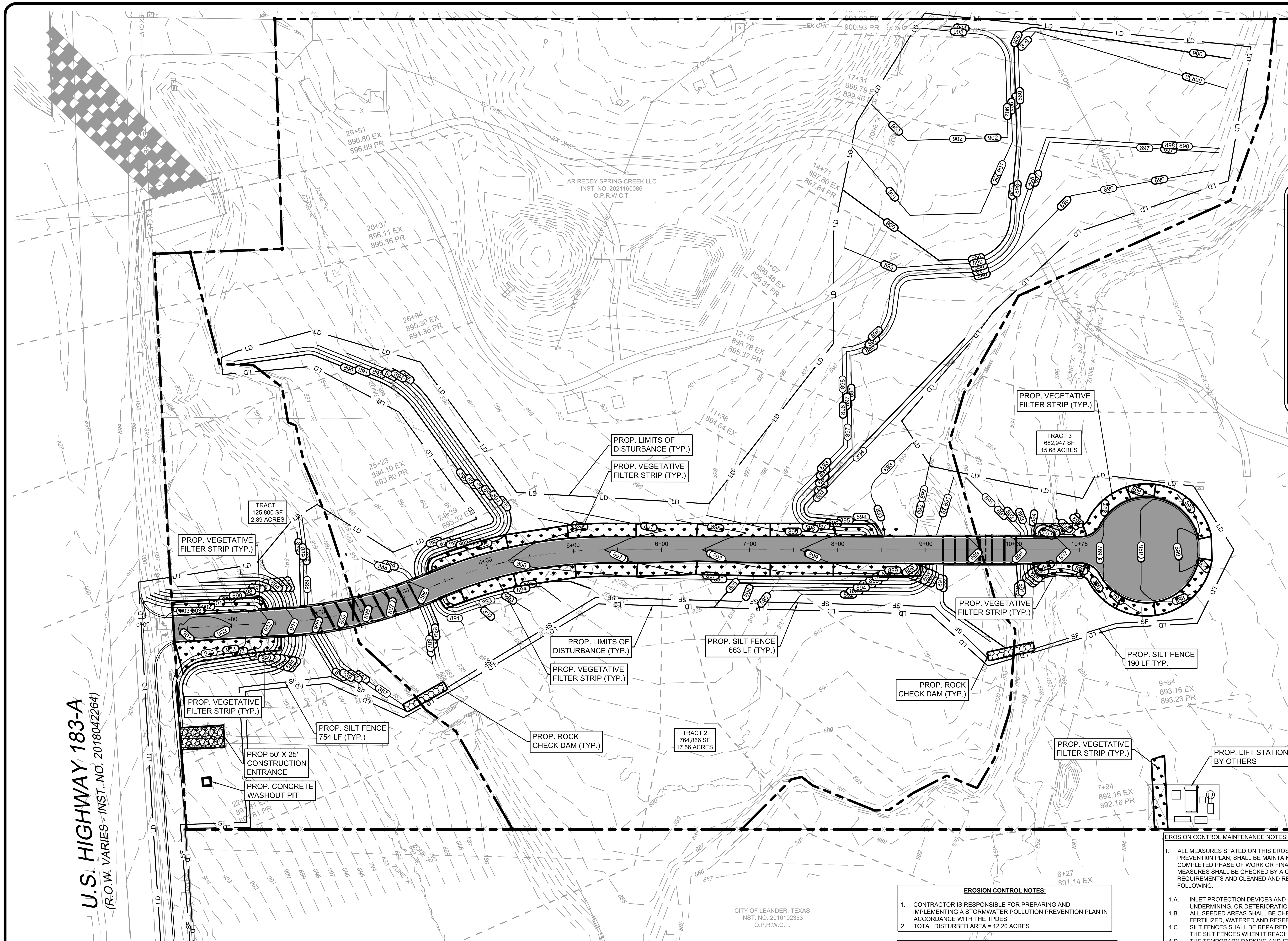
kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

HYDRAULIC CALCULATIONS

SHEET:
C6.3



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

PROPOSED LIMITS OF DISTURBANCE	LD
PROPOSED SILT FENCE	SF
PROPOSED INLET PROTECTION	
PROPOSED CONSTRUCTION ENTRANCE	
PROPOSED ROCK CHECK FILTER DAM	
PROPOSED CONCRETE WASHOUT PIT	
EXISTING CONTOUR	500
PROPOSED CONTOUR	500
EXISTING DRAINAGE FLOW ARROW	
PROPOSED DRAINAGE FLOW ARROW	
PROPERTY BOUNDARY	
PROPOSED CORRIDOR	

EROSION CONTROL MAINTENANCE NOTES:

1. ALL MEASURES STATED ON THIS EROSION AND SEDIMENT CONTROL PLAN, AND IN THE STORM WATER POLLUTION PREVENTI0N PLAN, SHALL BE MAINTAINED IN FULLY FUNCTIONAL CONDITION UNTIL NO LONGER REQUIRED FOR A COMPLETED PHASE OF WORK OR FINAL STABILIZATION OF THE SITE. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED BY A QUALIFIED PERSON ON A SCHEDULE WHICH COMPLIES WITH THE GENERAL PERMIT REQUIREMENTS AND CLEANED AND REPAIRED WITHIN 48 HOURS OF THE INSPECTION IN ACCORDANCE WITH THE FOLLOWING:

1.A. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING, OR DETERIORATION.
1.B. ALL SEEDED AREAS SHALL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED. AREAS SHOULD BE FERTILIZED, WATERED AND RESEEDED AS NEEDED.
1.C. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED. SEDIMENT SHALL BE REMOVED FROM THE SILT FENCES WHEN IT REACHES ONE-HALF THE HEIGHT OF THE SILT FENCE.
1.D. THE TEMPORARY PARKING AND STORAGE AREA (IF PRESENT) SHALL BE KEPT IN GOOD CONDITION (SUITABLE FOR PARKING AND STORAGE). THIS MAY REQUIRE PERIODIC TOP DRESSING OF THE TEMPORARY PARKING AS CONDITIONS DEMAND.
1.E. OUTLET STRUCTURES IN THE SEDIMENTATION BASINS OR SEDIMENT TRAPS (IF PRESENT) SHALL BE MAINTAINED IN OPERATIONAL CONDITION AT ALL TIMES. SEDIMENT SHALL BE REMOVED FROM SEDIMENT BASINS OR TRAPS WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
1.F. MAINTENANCE PROCEDURES FOR THE EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED ARE GIVEN IN SECTION 5 OF THE STORM WATER POLLUTION PREVENTION PLAN.

EROSION CONTROL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR PREPARING AND IMPLEMENTING A STORMWATER POLLUTION PREVENTION PLAN IN ACCORDANCE WITH THE TPDES.
2. TOTAL DISTURBED AREA = 12.20 ACRES .

NOTES FOR CHANGES TO SWPPP:

CONTRACTOR SHALL BE REQUIRED TO UPDATE THIS SWPPP WHENEVER THERE IS A CHANGE IN DESIGN, CONSTRUCTION, OPERATION, OR MAINTENANCE, OR WHENEVER THE RESULT OF AN INSPECTION INDICATES THAT THIS SWPPP IS INEFFECTIVE IN ELIMINATING OR SIGNIFICANTLY MINIMIZING POLLUTANTS IN STORMWATER DISCHARGES. HOWEVER, THE REGULATIONS OF THE TEXAS BOARD OF PROFESSIONAL ENGINEERS REQUIRE THAT CHANGES MADE BY THE CONTRACTOR DURING CONSTRUCTION MUST BE AUTHORIZED BY A LICENSED TEXAS ENGINEER. THESE CHANGES MAY BE AUTHORIZED BY THE ENGINEER OF RECORD THROUGH UPDATED DRAWINGS, WORK ORDER CHANGES, OR OTHER METHODS ACCEPTABLE TO THE ENGINEER; OR BY ANOTHER ENGINEER PROVIDED THAT THEY NOTIFY THE ENGINEER OF RECORD.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

EROSION CONTROL SEQUENCE:

1. INSTALL SILT FENCES AROUND PERIMETER OF PROPERTY AND DISTURBED AREAS AS SHOWN.
2. INSTALL INLET PROTECTION FOR ALL EXISTING GRATE INLETS, CURB INLETS AND AT THE ENDS OF ALL EXPOSED STORM SEWER PIPES, IF PRESENT.
3. CONSTRUCT TEMPORARY CONSTRUCTION EXIT.
4. COMMENCE GRUBBING AND REMOVAL OF VEGETATION IN AREA TO RECEIVE CUT OR FILL.
5. COMMENCE GRADING OPERATION FOR BUILDING PAD PREPARATION.
6. INSTALL ALL UNDERGROUND UTILITIES.
7. FINALIZE PAVEMENT SUBGRADE PREPARATION.
8. INSTALL ALL PROPOSED STORM SEWER PIPES AND INSTALL INLET PROTECTION SILT FENCES AT ENDS OF EXPOSED PIPES.
9. CONSTRUCT ALL GRATE INLETS AND DRAINAGE STRUCTURES. INLET PROTECTION SILT FENCES MAY BE REMOVED TEMPORARILY FOR THIS CONSTRUCTION.
10. REMOVE SILT FENCES AROUND INLETS AND MANHOLES NO MORE THAN 48 HOURS PRIOR TO PLACING STABILIZED BASE COURSE.
11. INSTALL BASE MATERIAL AS REQUIRED FOR PAVEMENT, CURB & GUTTER.
12. INSTALL ALL PAVING, CURB & GUTTER.
14. COMPLETE PLANTING AND/OR SEEDING OF VEGETATED AREAS TO ACCOMPLISH STABILIZATION, IN ACCORDANCE WITH NCTCOG STANDARDS.
15. REMOVE TEMPORARY CONSTRUCTION EXIT & SILT FENCES.

TX DOT NOTES

PROPOSED IMPROVEMENTS WITHIN TXDOT RIGHT OF WAY TO BE BY SEPARATE PERMIT. REFER TO TXDOT PERMIT PLANS PREPARED BY KIRKMAN ENGINEERING, DATED JULY 2022.

Know what's below. Call before you dig.

GRAPHIC SCALE
0 60 120 FEET
SCALE: 1" = 60'

11/27/2023
SHEA O. KIRKMAN
91865

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

EROSION CONTROL PLAN

SHEET:
C7.0

CAUGHFIELD RANCH, LTD.
INST. NO. 2017004570
O.P.R.W.C.T.

LARKSPUR COMMUNITY DEVELOPMENT, INC.
INST. NO. 2016088036
O.P.R.W.C.T.

AR REDDY SPRING CREEK LLC
INST. NO. 202116086
O.P.R.W.C.T.

CITY OF LEANDER, TEXAS
INST. NO. 2016102353
O.P.R.W.C.T.

U.S. HIGHWAY 183-A
(R.O.W. VARIES - INST. NO. 2018042264)

TRACT 1
125,800 SF
2.89 ACRES

TRACT 2
764,866 SF
17.56 ACRES

TRACT 3
682,947 SF
15.68 ACRES

PROPOSED 100-YEAR FLOODPLAIN LIMITS

EXISTING 100-YEAR FLOODPLAIN LIMITS

25+23
894.10 EX
893.80 PR

24+30
893.32 EX

23+34
892.61 EX
892.70 PR

22+16
891.81 EX
891.81 PR

19+68
902.23 EX
901.96 PR

19+15
901.08 EX
900.93 PR

17+31
899.79 EX
899.46 PR

14+71
897.80 EX
897.84 PR

13+67
896.45 EX
896.31 PR

12+76
895.78 EX
895.37 PR

11+38
894.64 EX

9+84
893.16 EX
893.23 PR

7+94
892.16 EX
892.16 PR

6+27
891.14 EX
891.14 PR

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- PROPOSED CONTOUR — 500
- EXISTING CONTOUR — 500
- PROPERTY BOUNDARY
- PROP. 100 YEAR FEMA FLOODPLAIN
- EX. 100 YEAR FEMA FLOODPLAIN

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

Know what's **below.** **Call** before you dig.

GRAPHIC SCALE
0 60 120 FEET
SCALE: 1" = 60'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35
PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

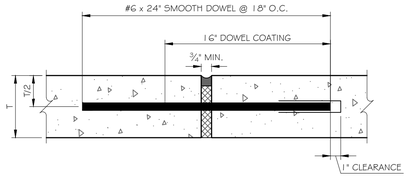
JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

FLOODPLAIN EXHIBIT

SHEET:
C8.0

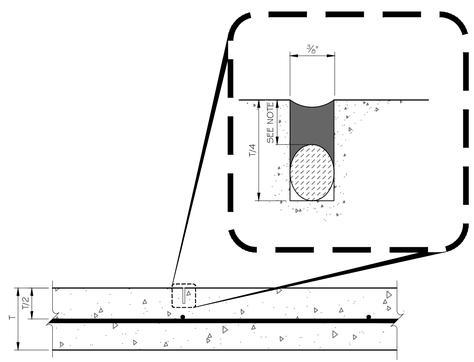
FILE PATH: K:\Jobs\CHV20001_LibertyHill150\Drawings\07_CONSTRUCTION PLANS\03 - Production\K:\Jobs\CHV20001_LibertyHill150\Drawings\07_CONSTRUCTION PLANS\03 - Production\CHV20001_C5.0 GRADING PLAN

FILENAME: CHV20001_C5.0_GRADING PLAN.dwg
PLOTTED BY: Prashanthi Gautam
PLOTTED DATE: 11/27/2023



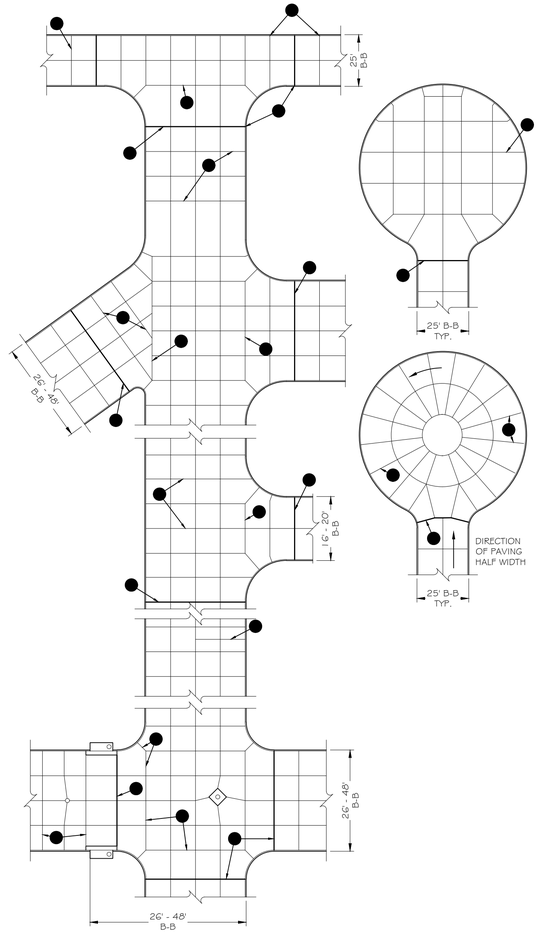
NOTES:
1. SLEEVES FOR DOWELS SHALL HAVE AN INSIDE DIAMETER OF ¼" GREATER THAN THE DIAMETER OF THE DOWELS AND SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO USE.
2. EXPANSION JOINTS SHALL BE CONSTRUCTED A MAXIMUM OF 500' APART ON STRAIGHT PAVING, AND WHERE INDICATED PER THE AMERICAN CONCRETE PAVEMENT ASSOCIATION'S TECHNICAL PUBLICATION ACPA ISOG1.01P (LATEST VERSION)
3. DOWEL COATING SHALL BE ASPHALTIC COATING.
4. DOWELS SHALL NOT BE TIED TO OTHER REINFORCEMENT.
5. REFER TO SIDEWALK DETAILS THIS SHEET FOR EXPANSION JOINTS IN SIDEWALK AREAS.
6. ALL PAVEMENT LOCATED WITHIN THE PUBLIC R.O.W. SHALL CONFORM TO THE GOVERNING AUTHORITY'S SPECIFICATIONS, DETAILS & REQUIREMENTS FOR PUBLIC PAVEMENT.
7. FINISHED SURFACES SHALL BE INSTALLED FLUSH WITH A DIFFERENTIAL ELEVATION NOT TO EXCEED ½".

EXPANSION JOINT (ISOLATION)
N.T.S.



NOTES:
1. DEPTH OF JOINT SEALANT SHALL BE PER MANUFACTURER'S RECOMENDATIONS
2. CONTROL JOINTS SHALL BE CONSTRUCTED WHERE INDICATED PER THE AMERICAN CONCRETE PAVEMENT ASSOCIATION'S TECHNICAL PUBLICATION ACPA ISOG1.01P (LATEST VERSION)
3. ALL PAVEMENT LOCATED WITHIN THE PUBLIC R.O.W. SHALL CONFORM TO THE GOVERNING AUTHORITY'S SPECIFICATIONS, DETAILS & REQUIREMENTS FOR PUBLIC PAVEMENT.

CONTROL JOINT (CONTRACTION)
N.T.S.



KEY NOTES:
A. EXPANSION JOINT (ISOLATION)
B. LONGITUDINAL CONSTRUCTION JOINT
C. LONGITUDINAL CONTROL JOINT (CONTRACTION)
D. TRANSVERSE CONTROL JOINT (CONTRACTION)
E. PLANNED TRANSVERSE CONSTRUCTION JOINT
F. EMERGENCY TRANSVERSE CONSTRUCTION JOINT
G. PLACE ½" EXPANSION JOINT FILLER IN TOP OF CURB ONLY AT ALL RADIUS POINTS

RULES:
1. AVOID ODD-SHAPED SLABS.
2. MAXIMUM TRANSVERSE JOINT SPACING FOR PAVEMENT SHOULD EITHER BE 24 TO 30 TIMES THE SLAB THICKNESS OR 15ft.
3. LONGITUDINAL JOINT SPACING SHOULD NOT EXCEED 12.5ft
4. KEEP SLABS AS SQUARE AS POSSIBLE. LONG NARROW SLABS TEND TO CRACK MORE THAN SQUARE ONES.
5. ALL TRANSVERSE CONTRACTION JOINTS MUST BE CONTINUOUS THROUGH THE CURB AND HAVE A DEPTH EQUAL TO¼ THE PAVEMENT THICKNESS.
6. IN ISOLATION JOINTS, THE FILLER MUST BE FULL DEPTH AND EXTEND THROUGH THE CURB
7. IF THERE IS NO CURB, LONGITUDINAL JOINTS SHOULD BE TIED WITH DEFORMED BARS.
8. OFFSETS AT RADIUS POINTS SHOUDL BE AT LEAST 1.5ft WIDE. JOINT INTERSECTION ANGLES LESS THAN 60° SHOULD BE AVOIDED.
9. MINOR ADJUSTMENTS IN JOINT LOCATION MADE BY SHIFTING OF SKEWING TO MEET INLETS AND MANHOLES WILL IMPROVE PAVEMENT PERFORMANCE
10. WHEN THE PAVEMENT AREA HAS DRAINAGE STRUCTURES, PLACE JOINTS TO MEET THE STRUCTURES IF POSSIBLE.

TYPICAL JOINTING LAYOUT
N.T.S.

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

PAVING DETAIL

SHEET:
C9.0

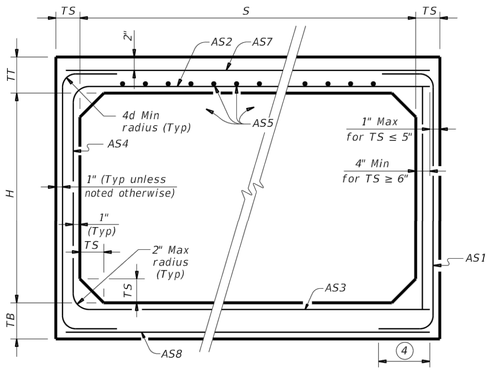
FILE PATH: K:\Jobs\CHV20001_LibertyHill35\Drawings\07_CORRIDOR PLANS\03 - Production\K:\Jobs\CHV20001_LibertyHill35\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C11.0 DRAINAGE DETAILS
FILENAME: CHV20001_C11.0 DRAINAGE DETAILS.dwg
PLOTTED BY: Prashanth Gautam
PLOTTED DATE: 11/27/2023

BOX DATA

SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
12	4	12	12	12	< 2	–	0.38	0.31	0.29	0.29	0.29	0.29	0.29	22.8
12	4	12	12	12	2 < 3	73	0.44	0.37	0.30	0.29	–	–	–	22.8
12	4	12	12	12	3 – 5	66	0.37	0.30	0.29	0.29	–	–	–	22.8
12	4	12	12	12	10	66	0.44	0.34	0.35	0.29	–	–	–	22.8
12	4	12	12	12	15	59	0.60	0.46	0.48	0.29	–	–	–	22.8
12	4	12	12	12	20	59	0.78	0.60	0.61	0.29	–	–	–	22.8
12	4	12	12	12	25	59	0.97	0.74	0.75	0.29	–	–	–	22.8
12	5	12	12	12	< 2	–	0.34	0.33	0.29	0.29	0.29	0.29	0.29	24.0
12	5	12	12	12	2 < 3	66	0.41	0.40	0.33	0.29	–	–	–	24.0
12	5	12	12	12	3 – 5	61	0.34	0.33	0.30	0.29	–	–	–	24.0
12	5	12	12	12	10	59	0.41	0.38	0.39	0.29	–	–	–	24.0
12	5	12	12	12	15	59	0.55	0.51	0.52	0.29	–	–	–	24.0
12	5	12	12	12	20	59	0.71	0.66	0.67	0.29	–	–	–	24.0
12	5	12	12	12	25	59	0.88	0.81	0.82	0.29	–	–	–	24.0
12	6	12	12	12	< 2	–	0.32	0.36	0.32	0.29	0.29	0.29	0.29	25.2
12	6	12	12	12	2 < 3	66	0.38	0.43	0.36	0.29	–	–	–	25.2
12	6	12	12	12	3 – 5	59	0.32	0.36	0.33	0.29	–	–	–	25.2
12	6	12	12	12	10	59	0.38	0.41	0.42	0.29	–	–	–	25.2
12	6	12	12	12	15	53	0.51	0.55	0.57	0.29	–	–	–	25.2
12	6	12	12	12	20	53	0.65	0.71	0.72	0.29	–	–	–	25.2
12	6	12	12	12	25	53	0.81	0.87	0.89	0.29	–	–	–	25.2
12	7	12	12	12	< 2	–	0.30	0.39	0.35	0.29	0.29	0.29	0.29	26.4
12	7	12	12	12	2 < 3	66	0.35	0.46	0.39	0.29	–	–	–	26.4
12	7	12	12	12	3 – 5	59	0.29	0.38	0.36	0.29	–	–	–	26.4
12	7	12	12	12	10	59	0.36	0.43	0.45	0.29	–	–	–	26.4
12	7	12	12	12	15	53	0.47	0.58	0.61	0.29	–	–	–	26.4
12	7	12	12	12	20	53	0.61	0.75	0.77	0.29	–	–	–	26.4
12	8	12	12	12	< 2	–	0.29	0.41	0.38	0.29	0.29	0.29	0.29	27.6
12	8	12	12	12	2 < 3	66	0.33	0.49	0.42	0.29	–	–	–	27.6
12	8	12	12	12	3 – 5	59	0.29	0.41	0.38	0.29	–	–	–	27.6
12	8	12	12	12	10	59	0.34	0.46	0.48	0.29	–	–	–	27.6
12	8	12	12	12	15	53	0.44	0.61	0.64	0.29	–	–	–	27.6
12	8	12	12	12	20	53	0.57	0.78	0.81	0.29	–	–	–	27.6
12	8	12	12	12	25	53	0.69	0.96	0.99	0.29	–	–	–	27.6

BOX DATA

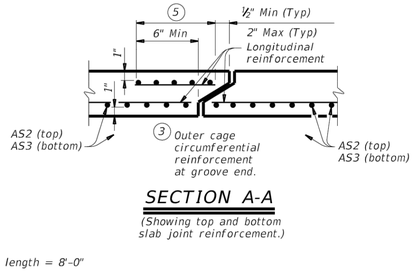
SECTION DIMENSIONS					Fill Height	M (Min)	REINFORCING (sq. in. / ft.) ②							① Lift Weight
S (ft.)	H (ft.)	TT (in.)	TB (in.)	TS (in.)	(ft.)	(in.)	AS1	AS2	AS3	AS4	AS5	AS7	AS8	(tons)
12	9	12	12	12	< 2	–	0.29	0.43	0.40	0.29	0.29	0.29	0.29	28.8
12	9	12	12	12	2 < 3	66	0.30	0.51	0.45	0.29	–	–	–	28.8
12	9	12	12	12	3 – 5	66	0.29	0.43	0.41	0.29	–	–	–	28.8
12	9	12	12	12	10	59	0.32	0.47	0.51	0.29	–	–	–	28.8
12	9	12	12	12	15	53	0.42	0.63	0.67	0.29	–	–	–	28.8
12	9	12	12	12	20	53	0.53	0.81	0.85	0.29	–	–	–	28.8
12	9	12	12	12	25	53	0.69	0.96	0.99	0.29	–	–	–	28.8
12	10	12	12	12	< 2	–	0.29	0.45	0.43	0.29	0.29	0.29	0.29	30.0
12	10	12	12	12	2 < 3	73	0.29	0.54	0.48	0.29	–	–	–	30.0
12	10	12	12	12	3 – 5	66	0.29	0.45	0.43	0.29	–	–	–	30.0
12	10	12	12	12	10	59	0.31	0.49	0.53	0.29	–	–	–	30.0
12	10	12	12	12	15	53	0.40	0.65	0.70	0.29	–	–	–	30.0
12	10	12	12	12	20	53	0.51	0.84	0.88	0.29	–	–	–	30.0
12	10	12	12	12	25	53	0.62	1.03	1.07	0.29	–	–	–	30.0
12	11	12	12	12	< 2	–	0.29	0.47	0.45	0.29	0.29	0.29	0.29	31.2
12	11	12	12	12	2 < 3	80	0.29	0.56	0.51	0.29	–	–	–	31.2
12	11	12	12	12	3 – 5	73	0.29	0.47	0.46	0.29	–	–	–	31.2
12	11	12	12	12	10	66	0.29	0.51	0.55	0.29	–	–	–	31.2
12	11	12	12	12	15	59	0.38	0.67	0.72	0.29	–	–	–	31.2
12	11	12	12	12	20	53	0.48	0.85	0.91	0.29	–	–	–	31.2
12	11	12	12	12	25	53	0.59	1.05	1.10	0.29	–	–	–	31.2
12	12	12	12	12	< 2	–	0.29	0.49	0.48	0.33	0.29	0.29	0.29	32.4
12	12	12	12	12	2 < 3	93	0.29	0.59	0.53	0.29	–	–	–	32.4
12	12	12	12	12	3 – 5	80	0.29	0.49	0.48	0.29	–	–	–	32.4
12	12	12	12	12	10	73	0.29	0.52	0.58	0.29	–	–	–	32.4
12	12	12	12	12	15	59	0.37	0.69	0.74	0.29	–	–	–	32.4
12	12	12	12	12	20	59	0.46	0.87	0.93	0.29	–	–	–	32.4



CORNER OPTION "A" CORNER OPTION "B"

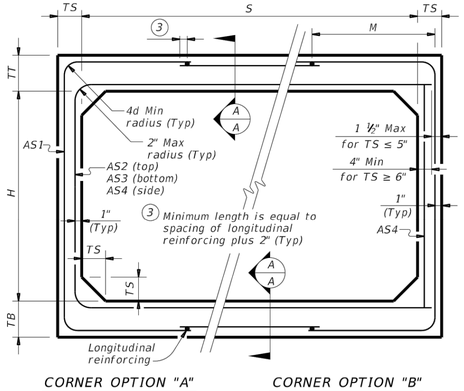
FILL HEIGHT LESS THAN 2 FT

④ Length is equal to spacing of longitudinal reinforcing plus 2". (10" Min) (Typ)



SECTION A-A

(Showing top and bottom slab joint reinforcement.)



CORNER OPTION "A" CORNER OPTION "B"

FILL HEIGHT 2 FT AND GREATER

① For box length = 8'-0"

② AS1 thru AS4, AS7 and AS8 are minimum required areas of reinforcement per linear foot of box length. AS5 is minimum required area of reinforcement per linear foot of box width.

MATERIAL NOTES:

Provide 0.03 sq. in./ft. minimum longitudinal reinforcement at each face in slabs and walls. This minimum requirement may be met by the transverse wires when wire mesh reinforcement is used.

Provide Class H concrete (f`c = 5,000 psi).

GENERAL NOTES:

Designs shown conform to ASTM C1577. Refer to ASTM C1577 for information or details not shown.

See Box Culverts Precast Miscellaneous Details (SCP-MD) standard sheet for details and notes not shown.

In lieu of furnishing the designs shown on this sheet, the contractor may furnish an alternate design that is equal to or exceeds the box design for the design fill height in the table. Submit shop plans for alternate designs in accordance with Item "Precast Concrete Structural Members (Fabrication)".

HL93 LOADING

Texas Department of Transportation | Bridge Division Standard

SINGLE BOX CULVERTS PRECAST

12'-0" SPAN

SCP-12

FILE: scp12sts-20.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

DATE:
FILE:

FULL PATH: K:\Jobs\CHV20001_Liberty\Hill\S3\Drawings\07_CORR\DOR PLANS\03 - Production\CHV20001_C11.0 DRAINAGE DETAILS

FILENAME: CHV20001_C11.0 DRAINAGE DETAILS.dwg
PLOTTED BY: Prashantbai Gadam
PLOTTED DATE: 11/27/2023

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35
PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

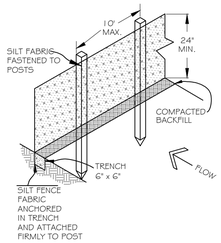
kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

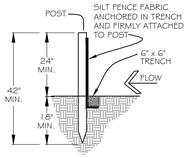
JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

DRAINAGE DETAILS

SHEET:
C10.0

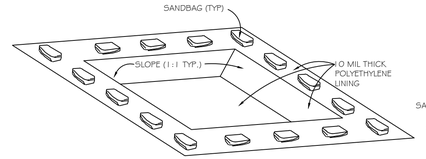




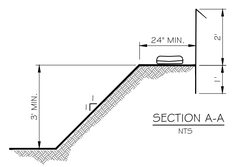
SILT FENCE GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
5. INSPECTION SHALL BE MADE IN ACCORDANCE WITH PERMIT REQUIREMENTS. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM WATER FLOW OR DRAINAGE.
7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

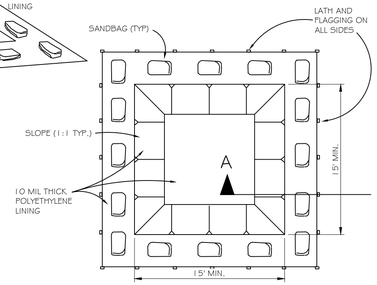
SILT FENCE



ISOMETRIC VIEW
NTS



SECTION A-A
NTS

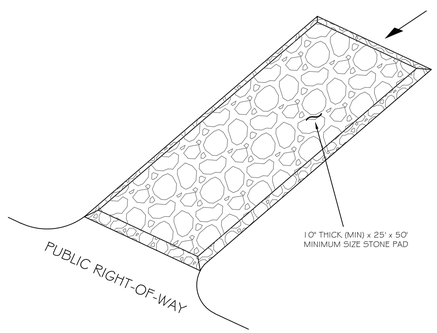


PLAN VIEW
NTS

NOTES
1. Actual layout, size and location to be determined by Contractor.
2. The concrete washout sign shall be installed within 30 ft. of the temporary concrete washout facility.
3. Once concrete wastes are allowed to harden, the concrete should be broken up, removed and disposed of properly. dispose of hardened concrete on a regular basis.

TEMPORARY CONCRETE WASHOUT AREA

N.T.S.



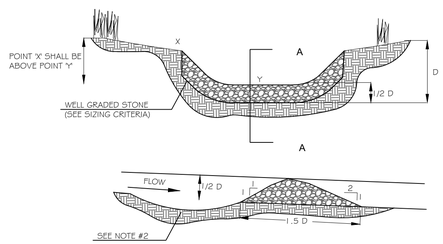
SIZE OF ROCK LBS.	% SMALLER BY WEIGHT
200	100
50	35-65
3	0

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE DRESSING WITH ADDITIONAL STONE AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE INTO PUBLIC RIGHT-OF-WAY. WASHING SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WHICH DRAINS INTO AN APPROVED SEDIMENT CONTROLLING STRUCTURE. USE SAND BAGS, GRAVEL, BOARDS OR OTHER APPROVED METHODS TO PREVENT SEDIMENT FROM ENTERING ANY STORM DRAIN, DITCH, OR WATER COURSE.
3. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

TEMPORARY CONSTRUCTION EXIT POINT

N.T.S.



SECTION 'A'-'A'

ROCK CHECK DAM GENERAL NOTES:

1. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 3" TO 8" IN DIAMETER DEPENDING ON EXPECTED FLOWS.
2. CONTRACTOR SHALL EXCAVATE A DEPRESSION AT UPSTREAM FACE TO ALLOW FOR ACCUMULATION OF SILTATION.
3. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
5. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

ROCK CHECK DAM

N.T.S.

11/27/2023

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

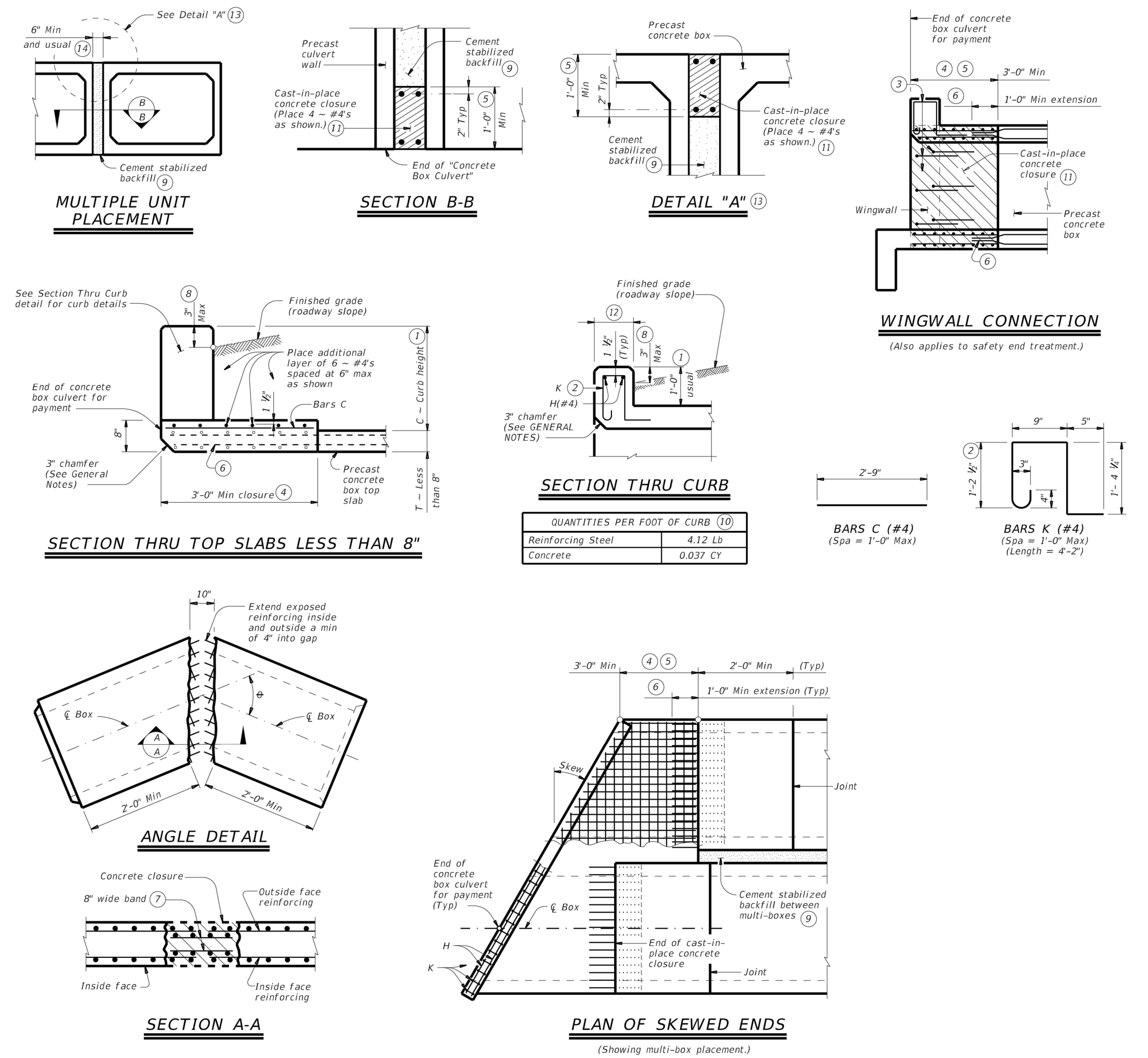
JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

EROSION CONTROL DETAIL

SHEET:

C11.0



QUANTITIES PER FOOT OF CURB (10)	
Reinforcing Steel	4.12 Lb
Concrete	0.037 CY

(1) 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail, bicycle rail, or curbs taller than 1'-0, refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Box Culvert Rail Mounting Details (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.

(2) For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.

(3) Extend curb, wingwall, or safety end treatment reinforcing into concrete closure. Bend or trim, as necessary, any reinforcing that does not fit into closure area.

(4) Provide a 3'-0" Min cast-in-place concrete closure. Break back boxes in the field or cast boxes short. Provide bands of reinforcing in the closure that are the same size and spacing as in the precast box section. Provide #4 longitudinal reinforcement spaced at 12 inches Max within the closure. Except where shown otherwise, construct the cast-in-place closure flush with the inside and outside faces of the precast box section.

(5) For multiple unit placements, adjust the length of the closure for the interior walls as necessary. Provide a 3'-0" Min cast-in-place closure in the top slab, bottom slab, and exterior wall. See Section B-B detail when interior walls are cast full length.

(6) Extend precast box reinforcing a minimum of 1'-0" into concrete closure (Typ).

(7) Place bands of reinforcing matching the inside and outside face reinforcing in the gaps of the top and bottom slabs. Place a band matching the outside face reinforcing of the wall in the gaps of the walls (placed in the outside face only). Tack weld the bands to the exposed reinforcing at each point of contact.

(8) For vehicle safety, the following requirements must be met:
- For structures without bridge rail, construct curbs no more than 3" above finished grade.
- For structures with bridge rail, construct curbs flush with finished grade.

Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.

(9) Cement stabilized backfill between boxes is considered part of the box culvert for payment.

(10) All curb concrete and reinforcing is considered part of the box culvert for payment.

(11) Any additional concrete and reinforcing required for the closures will be considered subsidiary to the box culvert for payment.

(12) 1'-0" typical. 2'-3" when the Box Culvert Rail Mounting Details (RAC) standard sheet is referred to elsewhere in the plans.

(13) For multiple unit placement with overlay, with 1 to 2 course surface treatment, or with the top slab as the final riding surface, provide wall closure as shown in Detail "A".

(14) This dimension may be increased with approval of the Engineer to allow the precast boxes to be tunneled or jacked in accordance with Item 476, "Jacking, Boring, or Tunneling Pipe or Box". No payment will be made for any additional material in the gap between adjacent boxes.

MATERIAL NOTES:

Provide Grade 60 reinforcing steel.
Provide ASTM A1064 welded wire reinforcement.
Provide Class C concrete (f'c = 3,600 psi) for the closures.
Provide cement stabilized backfill meeting the requirements of Item 400, "Excavation and Backfill for Structures."
Any additional concrete required for the closures will be considered subsidiary to the box culvert.

GENERAL NOTES:

Designed according to AASHTO LRFD Bridge Design Specifications.
Refer to the Single Box Culverts Precast (SCP) standard sheets for details and notes not shown.
Chamfer the bottom edge of the top slab closure 3 inches at culvert closure ends.

Cover dimensions are clear dimensions, unless noted otherwise.
Reinforcing bars dimensions are out-to-out of bars.

HL93 LOADING

Texas Department of Transportation — Bridge Division Standard

BOX CULVERTS PRECAST MISCELLANEOUS DETAILS

SCP-MD

FILE: scpmdsts-20.dgn | DN: GAF | CK: LMW | DW: BWH/TxDOT | CK: GAF
©TxDOT February 2020

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

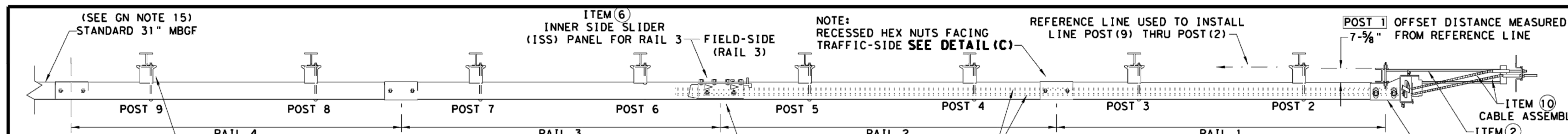
REV.	DATE:	DESCRIPTION:

KIRKMAN ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

CONSTRUCTION DETAIL I

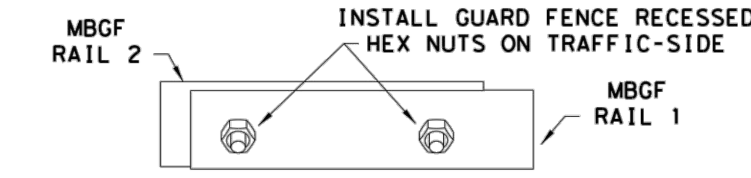
SHEET:
C12.0



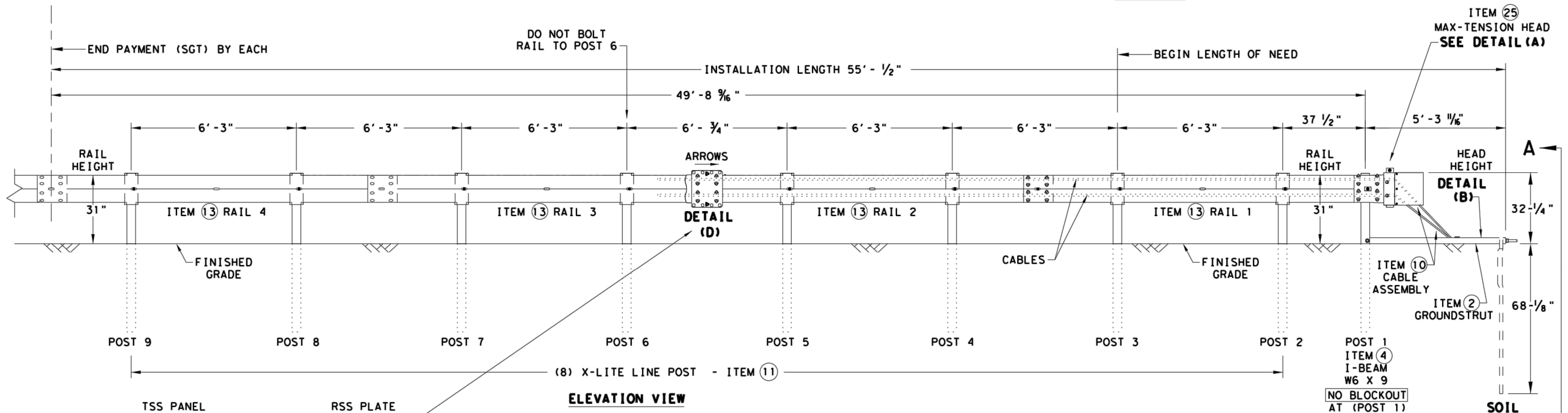
PLAN VIEW

NOTES:
1. ITEM 12 COMPOSITE BLOCKOUTS INSTALLED AT LINE POST(9) THRU LINE POST(2).
2. DO NOT INSTALL A BLOCKOUT AT LINE POST(1).

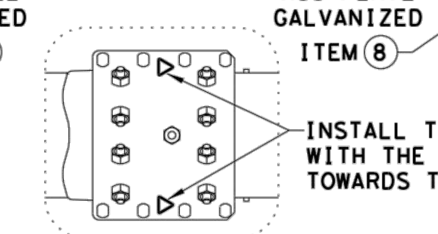
NOTE: SECURE THE (TSS) PANEL TO OUTSIDE OF RAIL 2 WITH THE PANEL ARROWS POINTING TOWARDS THE HEAD.



DETAIL (C)

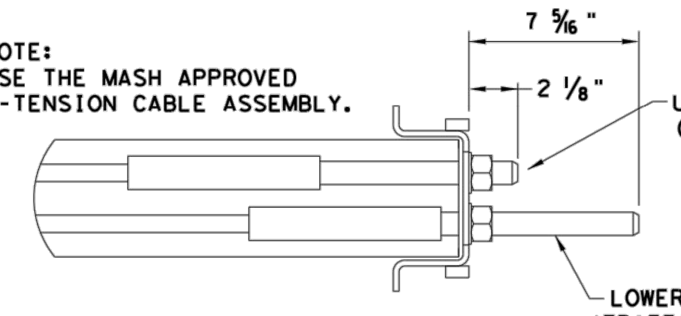


ELEVATION VIEW

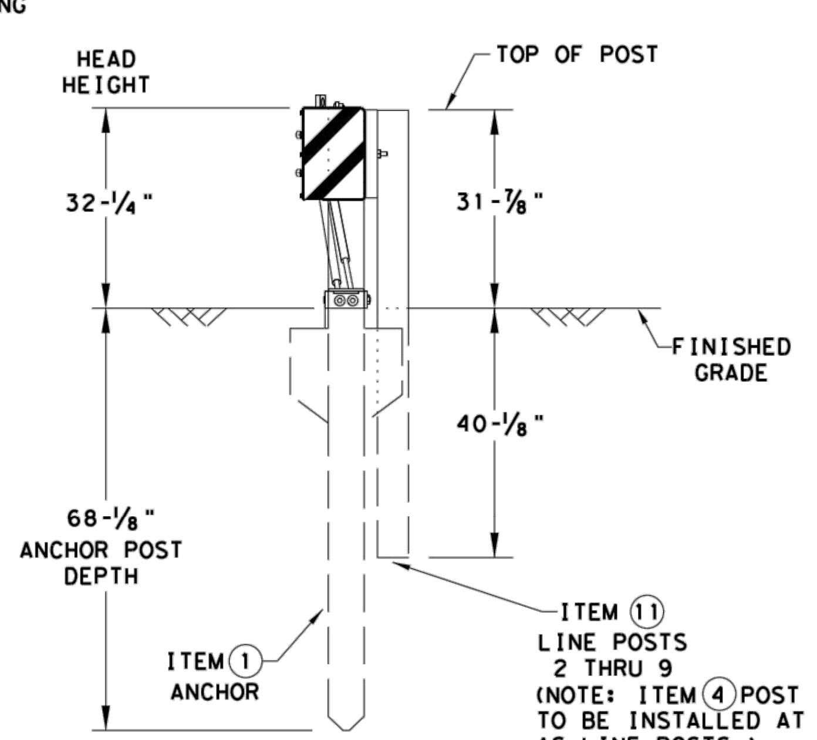


TSS PANEL AND RSS PLATE
DETAIL (D)

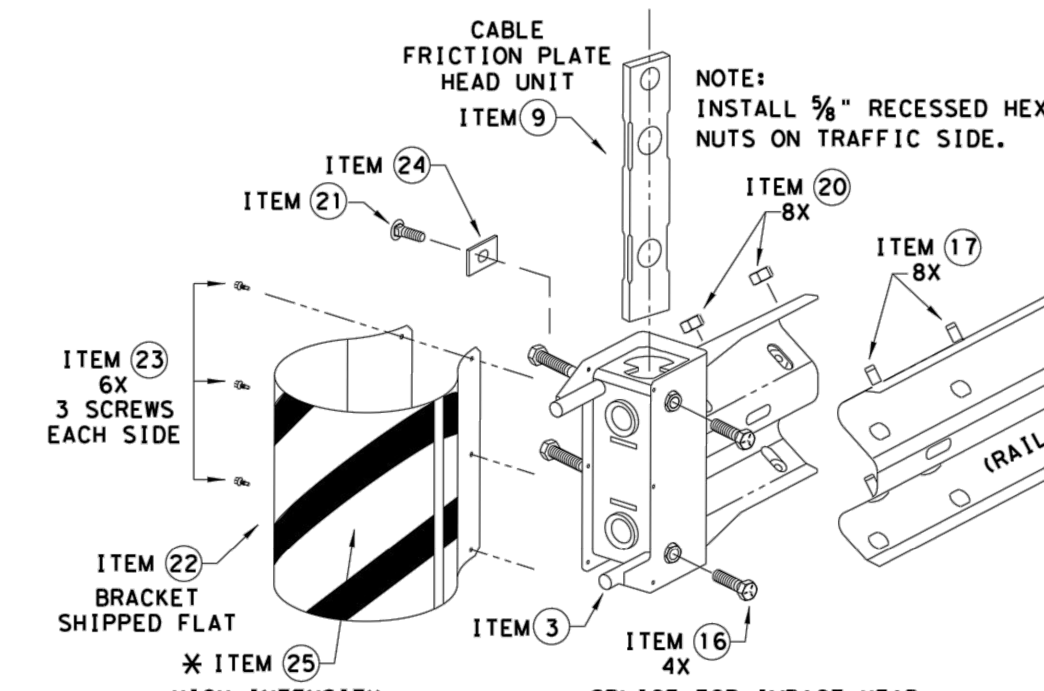
NOTE:
USE THE MASH APPROVED X-TENSION CABLE ASSEMBLY.



DETAIL (B)



SOIL ANCHOR, POST 1 & LINE POST 2 THRU 9
SECTION VIEW A-A



NOTE: DELINEATION MARKER IN ACCORDANCE WITH TEXAS MUTCD.

DETAIL (A)

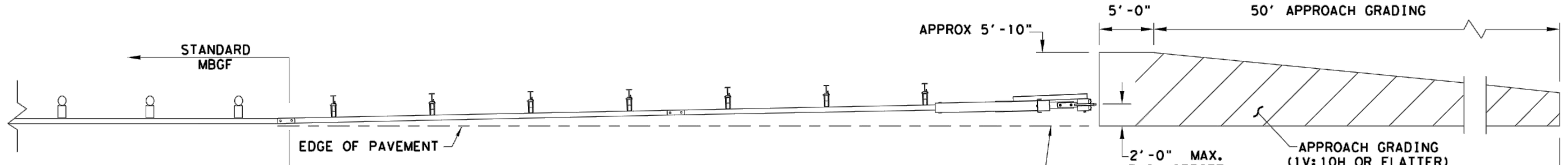
GENERAL NOTES

1. FOR SPECIFIC INFORMATION REGARDING INSTALLATION AND TECHNICAL GUIDANCE OF THE SYSTEM, CONTACT: LINDSAY TRANSPORTATION SOLUTIONS (LTS) - BARRIER SYSTEMS, INC. AT (707) 374-6800
2. FOR INSTALLATION, REPAIR, & MAINTENANCE REFER TO THE; MAX-TENSION INSTALLATION INSTRUCTION MANUAL. P/N MANMAX REV D (ECN 3516).
3. APPLY HIGH INTENSITY REFLECTIVE SHEETING, "OBJECT MARKER" ON THE FRONT FACE OF THE DEVICE PER MANUFACTURE'S RECOMMENDATIONS. OBJECT MARKER SHALL CONFORM TO THE STANDARDS REQUIRED IN TEXAS MUTCD.
4. FOR POST (LEAVE-OUT) INSTALLATION AND GUIDANCE SEE TXDOT'S LATEST ROADWAY MOW STRIP STANDARD.
5. ALL STEEL COMPONENTS ARE GALVANIZED PER ASTM A123 OR EQUIVALENT UNLESS OTHERWISE STATED.
6. SYSTEM SHOWN USING STEEL WIDE FLANGE POST WITH COMPOSITE BLOCKOUTS.
7. COMPOSITE MATERIAL BLOCKOUT THAT MEETS THE REQUIREMENTS OF DMS-7210, MAY BE SUBSTITUTED FOR BLOCKOUTS SIMILAR DIMENSIONS. SEE CONSTRUCTION DIVISION MATERIAL PRODUCER LIST(MPL)FOR CERTIFIED PRODUCERS.
8. REFER TO INSTALLATION MANUAL FOR SPECIFIC PANEL LAPPING GUIDANCE.
9. IF SOLID ROCK IS ENCOUNTERED SEE THE MANUFACTURER'S INSTALLATION MANUAL FOR INSTALLATION GUIDANCE.
10. POSTS SHALL NOT BE SET IN CONCRETE.
11. A DRIVING CAP WITH A TIMBER OR PLASTIC INSERT SHALL BE USED WHEN DRIVING POST TO PREVENT DAMAGE TO THE GALVANIZING ON TOP OF THE POST.
12. MAX-TENSION SYSTEM SHALL NEVER BE INSTALLED WITHIN A CURVED SECTION OF GUARDRAIL.
13. IF A DELINEATION MARKER IS REQUIRED, MARKER SHALL BE IN ACCORDANCE WITH TEXAS MUTCD.
14. THE SYSTEM IS SHOWN WITH 12'-6" MBGF PANELS, 25'-0" MBGF PANELS ARE ALSO ALLOWED.
15. A MINIMUM OF 12'-6" OF 12GA. MBGF IS REQUIRED IMMEDIATELY DOWNSTREAM OF THE MAX-TENSION SYSTEM.

	ITEM #	PART NUMBER	DESCRIPTION	QTY
	1	BSI-1610060-00	SOIL ANCHOR - GALVANIZED	1
	2	BSI-1610061-00	GROUND STRUT - GALVANIZED	1
	3	BSI-1610062-00	MAX-TENSION IMPACT HEAD	1
	4	BSI-1610063-00	W6x9 I-BEAM POST 6FT.-GALVANIZED	1
	5	BSI-1610064-00	TSS PANEL - TRAFFIC SIDE SLIDER	1
	6	BSI-1610065-00	ISS PANEL - INNER SIDE SLIDER	1
	7	BSI-1610066-00	TOOTH - GEOMET	1
	8	BSI-1610067-00	RSS PLATE - REAR SIDE SLIDER	1
	9	B061058	CABLE FRICTION PLATE - HEAD UNIT	1
	10	BSI-1610069-00	CABLE ASSEMBLY - MASH X-TENSION	2
	11	BSI-1012078-00	X-LITE LINE POST-GALVANIZED	8
	12	B090534	8" W-BEAM COMPOSITE-BLOCKOUT XT110	8
	13	BSI-4004386	12'-6" W-BEAM GUARD FENCE PANELS 12GA.	4
	14	BSI-1102027-00	X-LITE SQUARE WASHER	1
	15	BSI-2001886	5/8" X 7" THREAD BOLT HH (GR.5)GEOMET	1
	16	BSI-2001885	3/4" X 3" ALL-THREAD BOLT HH (GR.5)GEOMET	4
	17	4001115	5/8" X 1 1/4" GUARD FENCE BOLTS (GR.2)MGAL	48
	18	2001840	5/8" X 10" GUARD FENCE BOLTS MGAL	8
	19	2001636	5/8" WASHER F436 STRUCTURAL MGAL	2
	20	4001116	5/8" RECESSED GUARD FENCE NUT (GR.2)MGAL	59
	21	BSI-2001888	5/8" X 2" ALL THREAD BOLT (GR.5)GEOMET	1
	22	BSI-1701063-00	DELINEATION MOUNTING (BRACKET)	1
	23	BSI-2001887	1/4" X 3/4" SCREW SD HH 410SS	7
	24	4002051	GUARDRAIL WASHER RECT AASHTO FWR03	1
*	25	SEE NOTE BELOW	HIGH INTENSITY REFLECTIVE SHEETING	1
**	26	4002337	8" W-BEAM TIMBER-BLOCKOUT, PDB01B	8
**	27	BSI-4004431	25' W-BEAM GUARDRAIL PANEL,8-SPACE,12GA.	2
	28	MANMAX Rev-(D)	MAX-TENSION INSTALLATION INSTRUCTIONS	1

* TO BE PROVIDED BY DISTRIBUTOR OR CONTRACTOR.

** ALTERNATIVE ITEMS NOT SHOWN.
ITEM(26) 8" WOOD-BLOCKOUTS
ITEM(27) 25' GUARD FENCE PANELS



NOTE: TXDOT GENERIC APPROACH GRADING LAYOUT USED FOR ALL TANGENT TYPE END TREATMENTS.

APPROACH GRADING AT GUARDRAIL END TREATMENTS

NOTE:
THIS STANDARD IS A BASIC REPRESENTATION OF THE MAX-TENSION END TERMINAL, IT IS NOT INTENDED TO REPLACE THE PRODUCT DESCRIPTION ASSEMBLY MANUAL.

Texas Department of Transportation | Design Division Standard

MAX-TENSION END TERMINAL
MASH - TL-3

SGT(11S)31-18

FILE: sgt11s3118.dgn | DN: TxDOT | CK: KM | DW: TxDOT | CK: CL
© TxDOT: FEBRUARY 2018 | CONT | SECT | JOB | HIGHWAY
REVISIONS | DIST | COUNTY | SHEET NO.

DATE:
FILE:

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV.	DATE:	DESCRIPTION:

kirkman
ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

CONSTRUCTION DETAIL II

SHEET:
C12.1

B3.6.5 For all temporary cul-de-sacs, temporary easements shall be established for the portions of the cul-de-sac which lie outside the road right-of-way. Such easements which lie within the plat boundary shall be shown on the final plat. Easements which lie outside the boundary of the plat may be in the form of a separate document, but must be recorded prior to construction of any roadway improvements.

B3.6.6 Temporary cul-de-sacs shall be removed, pavement repaired, and drainage patterns restored upon subsequent extension of the dead-end roadway. This work shall include any driveways, culverts, and/or sidewalk extensions as needed to provide a functional roadway and retain access. This work shall be considered subsidiary to the extension project and included in those plans per the requirements of this Appendix.

B3.7 Additional Right of Way for Existing Roads

When a subdivision is adjacent to an existing road, the County Engineer shall determine the right-of-way width that will be necessary for the maintenance and improvement of the existing road. If the existing road is a major thoroughfare, as defined herein, the Owner shall dedicate to the public up to 120 feet in overall width of the right-of-way, as determined by the County Engineer. The Owner may dedicate either the fee ownership in the land or an easement for road, drainage and utility purposes, at the Owners' option.

B4 - Construction – General

B4.1 A preconstruction meeting shall be scheduled prior to the start of construction. The Design Engineer, Owner, Contractor, Subcontractors, and County Engineer shall attend this meeting. All roads are to be constructed in accordance with the construction documents as approved by the County Engineer and in accordance with the specifications found in the current version of the "Texas Department of Transportation Manual Standard Specifications for Construction of Highways, Streets, and Bridges" unless otherwise stated on the construction documents approved by the County Engineer.

B4.2 All materials shall be sampled and tested by an Independent Testing Laboratory in accordance with the construction documents approved by the County Engineer. The Owner shall pay for all testing services and shall furnish the County Engineer with certified copies of these test results. The County Engineer must approve the test results prior to constructing the next course of the roadway structure. Any material which does not meet the minimum required test specifications shall be removed and recompacted or replaced unless alternative remedial action is approved in writing from the County Engineer.

B4.3 Except for electrical lines, all underground nonferrous utilities within a right-of-way or easement must be accompanied by ferrous metal lines to aid in tracing the location of said utilities through the use of a metal detector.

B4.4 All pavements are to be designed by a Registered Professional Engineer. The design shall be based on a 20-year design life and in conjunction with recommendations based upon a soils report of samples taken along the proposed roadways. Test borings shall be placed at a maximum spacing of 500 feet or other sampling frequency approved by the County Engineer based on recommendations provided by the geotechnical engineer. Borings shall be to a depth of ten ft or, if solid rock is encountered, one ft below non-fractured rock. The soils report and pavement design

shall be submitted to the County Engineer for review. The pavement design must be approved by the County Engineer prior to or concurrently with the review and approval of the construction plans. In addition to the basis of the pavement design, the soils report shall contain the results of sampled and tested subgrade for plasticity index.

B5 - Subgrade

B5.1 The preparation of the subgrade shall follow good engineering practices as directed by the County Engineer in conjunction with recommendations outlined in the geotechnical report. When the Plasticity Index (PI) is greater than 20, a sufficient amount of lime shall be added as described in Item 260 of the current edition of the TxDOT Standard Specifications for Construction until the PI is less than 20. If the addition of lime as described in Item 260 is not feasible, an alternate stabilizing design shall be proposed and submitted to the County Engineer for approval. The subgrade shall be prepared and compacted to achieve a dry density per TxDOT Item 132. In addition, proof rolling may be required by the County Engineer.

B5.2 If Lime is necessary, then a sufficient amount of lime shall be added, as described in Item 260 of the current edition of the TxDOT Standard Specifications for Construction to properly stabilize subgrade. The use of Hydrated lime or lime slurry is approved; however, the use of Pelletized lime is not approved.

B5.3 Prior to lime stabilization, a sulfate test of in situ soils shall be performed by developer to confirm the appropriate means and methods of stabilization. Provide sulfate test to County Engineer prior to stabilization.

B5.4 Any variation to the County's stabilization requirements must be approved by the County Engineer.

B5.5 The subgrade shall be prepared and compacted to achieve a dry density per TxDOT Item 132. In addition, proof rolling may be required by the County Engineer.

B5.6 The subgrade shall be inspected and approved by an Independent Testing Laboratory and a certified copy of all inspection reports furnished to the County Engineer. The County Engineer must approve the report prior to application of the base material. All density test reports shall include a copy of the work sheet showing the percentage of the maximum dry (Proctor) density. The number and location of all subgrade tests shall be determined by the County Engineer.

B6 - Base Material

B6.1 Base material shall conform to Item 247 of the current edition of the TxDOT Standard Specifications for Construction, "Flexible Base". The base material shall be Type A Grade 4, or as approved by the County Engineer. Grade 4 material shall conform to the requirements of Table B6.1 below:

Table B6.1: Gradation Specification for TY A, Grade 4

Master gradation sieve size	Cumulative % Retained
2 ½"	-
1 ¾"	0
7/8"	10% - 35%
3/8"	30% - 65%
#4	45% - 75%
#40	70% - 90%
#200	87% - 95%

B6.2 Each layer of base course shall be tested for in-place dry density and measured for compacted thickness. The number and location of all base test samples shall be determined by the County Engineer.

B6.3 The base shall be prepared and compacted to achieve a minimum of 100% of the maximum (Proctor) dry density or as approved by the County Engineer upon recommendation by the testing laboratory. The maximum lift shall not exceed six inches. The base must be inspected and approved by an Independent Testing Laboratory and a certified copy of the test results furnished to the County Engineer for approval. Prior to the placement of the first lift of base, the stockpile shall be tested for the specifications found in Item 247 Table 1 and the result furnished to the County Engineer for approval.

B7 - Bituminous Pavement

B7.1 Urban roads require a minimum 2 inch wearing surface of HMAC Type D. The mix shall be from a TxDOT certified plant and the mix design shall be submitted to the County Engineer for approval prior to placement of the material.

B7.2 If Providing mixture Type C or D, use performance grade (PG) binder 70-22. Provide PG binder that does not contain Recycled Engine Oil Bottoms (REOBs) or Poly Phosphoric Acid (PPA). Recycled Asphalt Pavement (RAP) is not permitted for use as a component of the HMACP. The Contractor is also not permitted the use Recycled Asphalt Shingles (RAS) as a component of the HMACP.

B7.3 If providing mixture Type B, use PG binder 64-22. Provide PG binders that do not contain REOBs or PPA. For subsurface course Type B, the use of twenty percent (20%) RAP is permitted in the mix design. The Contractor is not permitted to use RAS as a component of the HMACP.

B7.4 Target laboratory molded density is 96.5% for all mixtures without RAP and when using a Texas Gyratory Compactor (TGC) for designing the mixture. When using Superpave Gyratory Compactor (SGC) to design mixtures, submit the SGC mix design to the Engineer for approval.

B7.5 All mixtures must meet the Hamburg requirement as stated in the table below.

High-Temperature Binder Grade	Test Method	Hamburg Wheel Test Requirements*
		Minimum # of Passes @ 0.5" Rut Depth, Tested @122°F
PG 64 or lower	Tex-242-F	7,000
PG 70	Tex-242-F	15,000
PG 76 or higher	Tex-242-F	20,000

** The County Engineer may accept Hamburg Wheel test results for production and placement if no more than 1of the 5 most recent tests is below the specified number of passes and the failing test is no more than 2,000 passes below the specified number of passes.*

B7.6 Submit any proposed adjustments or changes to a job mix formula to the County Engineer before production of the new job mix formula.

B7.7 Unless otherwise approved, provide Type B mixtures that have no less than 4.5% asphalt binder, and TY C and D mixtures with no less than 4.7% binder.

B7.8 For Mixture Design Verification, provide the Engineer with two 5-gallon buckets of each aggregate stockpile to be used on the project and three gallons of each PG binder to be used on the project. Also provide sufficient quantities of any other additives that will be used in the HMA mixture. This must be done prior to approval of the mix design, unless already performed within a one-year time period.

B7.9 Prior to allowing production of the trial batch, the Engineer will use the materials provided by the Contractor to perform the following tests to verify the HMA mixture design.

1. Indirect Tensile Test in accordance with Tex-226-F
2. Hamburg Wheel Test in accordance with Tex-242-F
3. Overlay Test in accordance with Tex-248-F
4. Cantabro Test in accordance with Tex-245-F

For mixtures designed with a Texas Gyratory Compactor (TGC), the Engineer may require that the target laboratory molded density be raised to no more than 97.5% or may lower the design number of gyrations to no less than 35 for mixtures designed with an SGC if any of the following conditions exist.

1. The Indirect Tensile Test results in a value greater than 200 PSI
2. The Hamburg Wheel Test results in a value less than 3.0 mm
3. The Overlay Test results in a value less than 100 cycles
4. The Cantabro Test results in a value of more than 20% loss

In lieu of, or in addition to evaluating the mixture design prior to allowing a trial batch to be produced, the Engineer may also evaluate the mixture produced during the trial batch for compliance with the 4 tests listed above.

B7.10 Contractor's Quality Control (CQC) test reports shall be submitted to the County Engineer on a daily basis. As a minimum, daily CQC testing on the produced mix shall include: Sieve Analysis TEX-200-F, Asphalt Content TEX-236-F, Hveem Stability TEX-208-F, Laboratory Compacted Density TEX-207-F, and Maximum Specific Gravity TEX-227-F. The number and location of all HMAC tests shall be determined by the County Engineer with a minimum of three, 6-inch diameter field cores secured and tested by the contractor from each day's paving. Each HMAC course shall be tested for in-place density, bituminous content and aggregate gradation, and shall be measured for compacted thickness. The number and location of all HMAC test samples shall be determined by the County Engineer.

B7.11 Rural roads may use either the specifications found in Section B7.1 or a two-course surface in accordance with Item 316, treatment wearing surface, of the current edition of the TxDOT Standard Specifications for Construction. The type and rate of asphalt and aggregate shall be indicated on the plans as a basis of estimate and shall be determined at the preconstruction conference. Aggregate used in the mix shall be on the TxDOT Quality Monitoring Schedule. Aggregate shall be Type B Grade 4. Gradation tests shall be required for each 300 cubic yards of material placed with a minimum of two tests per each grade per each project. Test results shall be reviewed by the County Engineer prior to application of the material.

B8 - Concrete Pavement

B8.1 In lieu of bituminous pavement, Portland cement concrete pavement may be used. In such cases, the pavement thickness shall be a minimum of 9 inches of concrete, and shall be jointed and reinforced in accordance with the detail included in Appendix J. The mix shall be from a TxDOT certified plant. The mix design shall be submitted to the County Engineer for approval prior to placement of the material.

B9 - Concrete - General

B9.1 Unless otherwise specified, concrete shall be in accordance with Item 421 of the current edition of the TxDOT Standard Specifications for Construction and be placed in accordance with the applicable item.

B9.2 All concrete shall be tested for compressive strength. One set of three concrete test cylinders shall be molded for every 50 cubic yards of concrete placed for each class of concrete per day, or at any other interval as determined by the County Engineer. A slump test shall be required with each set of test cylinders. One cylinder shall be tested for compressive strength at an age of seven days and the remaining two cylinders shall be tested at 28 days of age.

B10 - Road Names, Signs and Markers

B10.1 All roads shall be named, with prior approval for said name from the Williamson County 911 Addressing Coordinator. Roads must be named in a manner to avoid confusion in identification. Roads that are extensions of existing roads must carry the names of those in existence. Roads

that are not continuous, or which have 90 degree turns, shall have different names. The Owner shall provide the Coordinator with two digital files of the plat. One file shall be in an Adobe .pdf format, and the other file shall be in an AutoCAD .dwg format georeferenced to NAD 1983 State Plane Grid Coordinate System, Texas Central Zone (4203), with drawing units of US feet. The road names shall be displayed on standard intersection road marker signs erected by the Owner in compliance with the TxMUTCD "Street Name Signs" and at the locations as indicated on the construction plans.

B10.2 Traffic control signs (such as stop, yield, and speed limit signs) shall be installed by the Owner of said subdivision in compliance with the latest version of the TxMUTCD and at the locations as indicated on the approved construction plans. Other traffic control signs, as shown on the construction plans, shall be installed to indicate any unusual traffic or road hazard or conditions that may exist. All traffic control devices shall be placed in compliance with latest version of the TxMUTCD and the construction cost shall be borne by the Owner.

B10.3 A speed limit of 25 mph for local roads, 30 mph for collector roads and 40 mph for arterial roads within all platted subdivisions is hereby adopted. This limit may be changed only by Commissioners Court upon the basis of an engineering and traffic investigation showing that the prima facie maximum reasonable and prudent speed for a particular road (or part of a road) should be different.

B10.4 The placement of a stop sign or a yield sign on the minor road at intersections shall be evaluated on a case-by-case basis in accordance with the TxMUTCD. An all-way stop sign (multi-way stop) is a traffic control device used to assign the right of way at intersections if certain traffic conditions exist and where the volumes of traffic on the intersecting roads is approximately equal. An all-way stop shall be installed only where warranted. According to the TxMUTCD, an all-way stop sign may be warranted when any of the following conditions exist:

B10.4.1 Where traffic control signals are justified, the multi-way stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.

B10.4.2 Five or more reported crashes in a 12-month period that are susceptible to correction by a multi-way stop installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions

B10.4.3 Where the following minimum traffic volumes exist:

a. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and

b. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but

c. If the 85th-percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35
PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

COUNTY NOTES I

SHEET:
C13.0

B10.4.4 Where no single criterion is satisfied, but where Criteria B10.4.2, B10.4.3(a), and B10.4.3(b) are all satisfied to 80 percent of the minimum values. Criterion B10.4.3(c) is excluded from this condition.

B10.5 For any road that is proposed to be extended at some time in the future, a minimum of five metal channel posts, equally spaced, shall be placed at the end of the road. Each post shall have an 18"x18" red diamond object marker sign (type OM-4 per TxMUTCD) placed four feet above the existing ground.

B10.6 A future road extension sign shall be placed at the end of all roads and temporary cul-de-sacs that are proposed to be extended at some time in the future. The sign shall state the following: Future Extension of <name of road>.

B10.7 Signage that differs from the standard signage that is maintained by the County shall be maintained in accordance with an executed license agreement between the County and the Owner. The signage shall be maintained in such a fashion to comply with the TxMUTCD requirements and the executed license agreement.

B10.8 If shared driveways are required to be named by the Williamson County 911 Addressing Coordinator, the driveway names shall be displayed on standard marker signs (BLACK letters on a WHITE background) erected by the Owner in compliance with the TxMUTCD, with prior approval for said name from the Williamson County 911 Addressing Coordinator. All other standard street name signs (WHITE letters on a GREEN background) in accordance with the TMUTCD, shall be erected by the Owner, unless approved in accordance with an executed license agreement between the County and the Owner. Williamson County Road & Bridge utilizes standard 2-3/8" steel pipe and the Wedge Anchor Steel System sign mounting detail (TxDOT Detail SMD(TWT) - 08) and retroreflective sheeting for roadside signs. Per the TxMUTCD, there shall be a minimum of 2 feet between the face of standard curb and the inside edge of signs or where standard curb is not present there shall be a minimum of 7 feet from the edge of the travel way to the inside edge of signs.

B11 - Drainage and Flood Control

B11.1 Stormwater management controls shall be designed, constructed, and maintained to restrict the rate of drainage from the platted area to the rate of drainage of the land in its existing condition. When a development shall have several sections, stormwater management controls for the ultimate developed area shall be constructed if not located in the first platted section. Stormwater management controls are to be designed by a Professional Engineer using a basis of a 2, 10, 25, and 100-year storm.

If proposed development is detention exempt, a Detention Exemption Letter, requesting the detention exemption to be utilized, shall be provided in place of a Drainage Report and the plat shall contain a corresponding plat note from Appendix C12.

A proposed development may be considered exempt from providing on-site stormwater detention requirements if it meets the requirements of one of the following sections:

B11.1.1 The County has identified "Detention Exempt Stream Reaches" that have been determined to have a stormwater discharge time-to-peak sufficiently long enough

(assuming uniform spatial and temporal rainfall distribution of a design storm event) to allow an adjacent proposed development to release undetained stormwater discharges directly into the Detention Exempt Stream Reach without adversely affecting downstream peak discharges. Detention Exempt Stream Reaches are shown in Exhibit 1 and are available in digital format (GIS shapefile) upon request. These reaches include portions of:

- Berry Creek
- Brushy Creek
- North Fork San Gabriel River
- Salado Creek
- San Gabriel River
- South Fork San Gabriel River
- Willis Creek

In order for a proposed development to qualify for a detention exemption, the proposed development shall meet one of the following criteria:

a. All land connecting the proposed development to a Detention Exempt Stream Reach is owned by the development parties, allowing the proposed development to discharge directly to a Detention Exempt Stream Reach.

OR

b. Necessary property easements are obtained by the development parties and sufficient drainage improvements are constructed in order to safely convey flows up to the 100-year storm event through adjacent properties to a Detention Exempt Stream Reach. Provide the following:

i. Provide a copy of drainage easements, or other agreement or evidence acceptable to the County, that all land connecting the proposed development to a Detention Exempt Stream Reach are obtained by the development parties.
ii. If the proposed drainage easement will cross any roadways not maintained by the County, approval from that local or state entity is required to pass un-detained flows from the property be developed, at locations with their right-of-way.
iii. Provide drainage calculations and construction plans if necessary, that demonstrate safe conveyance of flows from the site to the Detention Exempt Stream Reach. The analysis may utilize normal depth tailwater conditions and shall be analyzed for the 100-year storm event.
iv. If channel construction or grading is necessary, the construction must be completed and approved by the County before approval of the Final Plat.

B11.1.2 Plats with three or less lots for single family residential use, with less than 20% impervious cover per lot.

B11.1.3 Plats with all lots of 2 acres or more and less than 20% of impervious cover per lot.

B11.1.4 Plats with a single lot intended for non-residential use, and the stormwater management controls would be more appropriate to be designed, constructed, and maintained by the property owner at the time of site development. The plat shall contain a corresponding plat note from Appendix C12.

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED
PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

COUNTY NOTES II

SHEET:
C13.1

ATTACHMENT N
INSPECTION AND MAINTENANCE FOR BMPs

The following worksheets may be used during and after construction for inspection and maintenance of temporary and permanent BMPs.

TEMPORARY BMP INSPECTION AND MAINTENANCE WORKSHEET

Complete this worksheet every seven days; OR, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): Inspection Date: Day: Time: am/pm
Scope of inspection (circle one): 14 Day Inspection or Weekly Inspection
Day of week normally conducted: 0.5 inch Rainfall Event: yes / no

Type	Inspected? (Y/N)	Areas of Concern
Disturbed Soil Areas		
Sediment & Erosion Controls		
Entrance(s) and Exit(s)		

BMP & Location	OK? (Y/N)	BMP Failure? (describe)	BMP Failure? (describe)

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: LANGFORD STUBER
CHV SAN GABRIEL PROPERTY OWNER LP

Date: 11-02-2023

Signature: Langford Stuber

TEMPORARY BMP INSPECTION AND MAINTENANCE WORKSHEET

Complete this worksheet every seven days; OR, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): Inspection Date: Day: Time: am/pm

Scope of inspection (circle one): 14 Day Inspection or Weekly Inspection

Day of week normally conducted: 0.5 inch Rainfall Event: yes / no

Type	Inspected? (Y/N)	Areas of Concern
Disturbed Soil Areas		
Sediment & Erosion Controls		
Entrance(s) and Exit(s)		

BMP & Location	OK? (Y/N)	BMP Failure? (describe)	BMP Failure? (describe)

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: RAJU PADIGALA
AR REDDY SPRING CREEK LLC

Date: 11-02-2023

Signature: Raju Padigala (Nov 8, 2023 12:24 CST)

ATTACHMENT P
MEASURES FOR MINIMIZING SURFACE STREAM CONTAMINATION

No pollution will be present on-site during construction. Temporary BMP measures such as silt fence and rock check dam will be provided to contain possible runoff.

Temporary Stormwater Section

Texas Commission on Environmental Quality

for Regulated Activities on the Edwards Aquifer Recharge Zone and Relating to 30 TAC §213.5(b)(4)(A), (B), (D)(I) and (G); Effective June 1, 1999

To ensure that the application is administratively complete, confirm that all fields in the form are complete, verify that all requested information is provided, consistently reference the same site and contact person in all forms in the application, and ensure forms are signed by the appropriate party.

Note: Including all the information requested in the form and attachments contributes to more streamlined technical reviews.

Signature

To the best of my knowledge, the responses to this form accurately reflect all information requested concerning the proposed regulated activities and methods to protect the Edwards Aquifer. This **Temporary Stormwater Section** is hereby submitted for TCEQ review and executive director approval. The application was prepared by:

Print Name of Customer/Agent: Langford Stuber, Raju Padigala

Date: 10/9/23

Signature of Customer/Agent:

Langford Stuber

Regulated Entity Name: Liberty Hill 15

Project Information

Potential Sources of Contamination

Examples: Fuel storage and use, chemical storage and use, use of asphaltic products, construction vehicles tracking onto public roads, and existing solid waste.

1. Fuels for construction equipment and hazardous substances which will be used during construction:

   ☐ The following fuels and/or hazardous substances will be stored on the site: _____

   These fuels and/or hazardous substances will be stored in:

   ☐ Aboveground storage tanks with a cumulative storage capacity of less than 250 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity between 250 gallons and 499 gallons will be stored on the site for less than one (1) year.

☐ Aboveground storage tanks with a cumulative storage capacity of 500 gallons or more will be stored on the site. An Aboveground Storage Tank Facility Plan application must be submitted to the appropriate regional office of the TCEQ prior to moving the tanks onto the project.

☒ Fuels and hazardous substances will not be stored on the site.

2. ☒ **Attachment A - Spill Response Actions**. A site specific description of the measures to be taken to contain any spill of hydrocarbons or hazardous substances is attached.

3. ☒ Temporary aboveground storage tank systems of 250 gallons or more cumulative storage capacity must be located a minimum horizontal distance of 150 feet from any domestic, industrial, irrigation, or public water supply well, or other sensitive feature.

4. ☒ **Attachment B - Potential Sources of Contamination**. A description of any activities or processes which may be a potential source of contamination affecting surface water quality is attached.

Sequence of Construction

5. ☒ **Attachment C - Sequence of Major Activities**. A description of the sequence of major activities which will disturb soils for major portions of the site (grubbing, excavation, grading, utilities, and infrastructure installation) is attached.

   ☒ For each activity described, an estimate (in acres) of the total area of the site to be disturbed by each activity is given.

   ☒ For each activity described, include a description of appropriate temporary control measures and the general timing (or sequence) during the construction process that the measures will be implemented.

6. ☒ Name the receiving water(s) at or near the site which will be disturbed or which will receive discharges from disturbed areas of the project: South Fork San Gabriel

Temporary Best Management Practices (TBMPs)

Erosion control examples: tree protection, interceptor swales, level spreaders, outlet stabilization, blankets or matting, mulch, and sod. Sediment control examples: stabilized construction exit, silt fence, filter dikes, rock berms, buffer strips, sediment traps, and sediment basins. Please refer to the Technical Guidance Manual for guidelines and specifications. All structural BMPs must be shown on the site plan.

7. ☒ **Attachment D – Temporary Best Management Practices and Measures**. TBMPs and measures will prevent pollution of surface water, groundwater, and stormwater. The construction-phase BMPs for erosion and sediment controls have been designed to retain sediment on site to the extent practicable. The following information is attached:

☐ A description of how BMPs and measures will prevent pollution of surface water, groundwater or stormwater that originates upgradient from the site and flows across the site.

☐ A description of how BMPs and measures will prevent pollution of surface water or groundwater that originates on-site or flows off site, including pollution caused by contaminated stormwater runoff from the site.

☐ A description of how BMPs and measures will prevent pollutants from entering surface streams, sensitive features, or the aquifer.

☐ A description of how, to the maximum extent practicable, BMPs and measures will maintain flow to naturally-occurring sensitive features identified in either the geologic assessment, TCEQ inspections, or during excavation, blasting, or construction.

8. ☐ The temporary sealing of a naturally-occurring sensitive feature which accepts recharge to the Edwards Aquifer as a temporary pollution abatement measure during active construction should be avoided.

☐ **Attachment E - Request to Temporarily Seal a Feature**. A request to temporarily seal a feature is attached. The request includes justification as to why no reasonable and practicable alternative exists for each feature.

☒ There will be no temporary sealing of naturally-occurring sensitive features on the site.

9. ☒ **Attachment F - Structural Practices**. A description of the structural practices that will be used to divert flows away from exposed soils, to store flows, or to otherwise limit runoff discharge of pollutants from exposed areas of the site is attached. Placement of structural practices in floodplains has been avoided.

10. ☒ **Attachment G - Drainage Area Map**. A drainage area map supporting the following requirements is attached:

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin will be provided.

☐ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a smaller sediment basin and/or sediment trap(s) will be used.

☒ For areas that will have more than 10 acres within a common drainage area disturbed at one time, a sediment basin or other equivalent controls are not attainable, but other TBMPs and measures will be used in combination to protect down slope and side slope boundaries of the construction area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. A smaller sediment basin and/or sediment trap(s) will be used in combination with other erosion and sediment controls within each disturbed drainage area.

☐ There are no areas greater than 10 acres within a common drainage area that will be disturbed at one time. Erosion and sediment controls other than sediment basins or sediment traps within each disturbed drainage area will be used.

11. ☐ **Attachment H - Temporary Sediment Pond(s) Plans and Calculations**. Temporary sediment pond or basin construction plans and design calculations for a proposed temporary BMP or measure have been prepared by or under the direct supervision of a Texas Licensed Professional Engineer. All construction plans and design information must be signed, sealed, and dated by the Texas Licensed Professional Engineer. Construction plans for the proposed temporary BMPs and measures are attached.

☒ N/A

12. ☒ **Attachment I - Inspection and Maintenance for BMPs.** A plan for the inspection of each temporary BMP(s) and measure(s) and for their timely maintenance, repairs, and, if necessary, retrofit is attached. A description of the documentation procedures, recordkeeping practices, and inspection frequency are included in the plan and are specific to the site and/or BMP.

13. ☒ All control measures must be properly selected, installed, and maintained in accordance with the manufacturer's specifications and good engineering practices. If periodic inspections by the applicant or the executive director, or other information indicate a control has been used inappropriately, or incorrectly, the applicant must replace or modify the control for site situations.

14. ☒ If sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain).

15. ☒ Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50%. A permanent stake will be provided that can indicate when the sediment occupies 50% of the basin volume.

16. ☒ Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges (e.g., screening outfalls, picked up daily).

Soil Stabilization Practices

Examples: establishment of temporary vegetation, establishment of permanent vegetation, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, or preservation of mature vegetation.

17. ☒ **Attachment J - Schedule of Interim and Permanent Soil Stabilization Practices**. A schedule of the interim and permanent soil stabilization practices for the site is attached.

18. [X] Records must be kept at the site of the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

19. [X] Stabilization practices must be initiated as soon as practicable where construction activities have temporarily or permanently ceased.

Administrative Information

20. [X] All structural controls will be inspected and maintained according to the submitted and approved operation and maintenance plan for the project.

21. [X] If any geologic or manmade features, such as caves, faults, sinkholes, etc., are discovered, all regulated activities near the feature will be immediately suspended. The appropriate TCEQ Regional Office shall be immediately notified. Regulated activities must cease and not continue until the TCEQ has reviewed and approved the methods proposed to protect the aquifer from any adverse impacts.

22. [X] Silt fences, diversion berms, and other temporary erosion and sediment controls will be constructed and maintained as appropriate to prevent pollutants from entering sensitive features discovered during construction.

ATTACHMENT A
SPILL RESPONSE ACTIONS

General

- An effective spill and leak response depends on proper recognition and response practices by construction workers and supervisors. Key elements are education and training.
- Records of releases that exceed the Reportable Quantity (RQ) for oil and hazardous substances should be maintained in accordance with the Federal and State regulations.
- Emergency contact information and spill response procedures shall be posted in a readily available area for access by all employees and subcontractors.
- Spill containment kits should be maintained for petroleum products and other chemicals that are regularly onsite. Materials in kits should be based on containment guidelines in the Material Safety and Data Sheets (MSDSs) for the substance most frequently onsite.
- Spill kits are intended for response to small spills, typically less than 5 gallons, of substances that are not extremely hazardous.
- Significant spills or other releases warrant immediate response by trained professionals.
- Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken.

Coordinator

- The contractor should be required to designate a site superintendent, foreman, safety officer, or other senior person who is onsite daily to be the Spill and Leak Response Coordinator.
- The coordinator must have knowledge of and be trained in correct spill and leak response procedures.
- The coordinator shall be responsible for implementing the spill and leak procedures and training all employees and sub-contractors on the site-specific spill and leak procedures. The training should include their responsibility to immediately notify the coordinator if a spill or leak occurs.

Spill Response

- Upon discovery of a spill, employees and subcontractors shall implement the following procedures:
    - Immediately stop work and clear the area by moving upwind of the spill.
    - Remove all ignition sources.
    - Notify the Spill and Leak Response Coordinator.
    - If there is an immediate danger to health or life, contact 911.

- The Spill and Leak Response Coordinator shall perform the following when the spill is not immediately dangerous to health and safety:
    - Consult the MSDS for safety and response procedures.
    - If it can be done safely, use onsite spill kits and soil to contain the spill.
    - Notify a hazardous response company to remove and properly dispose of the spilled material and the contaminated containment materials.

Spill Reporting

- The Spill and Leak Response Coordinator is responsible for notifying authorities of spills and leaks. Notification requirements are based on Reportable Quantities as established by the type or material, quantity and location (onto land or into water in the state) of the release. https://www.tceq.texas.gov/response/spills/spill_rq.html
- Reportable Quantities (RQ) in the State of Texas are established by the TCEQ in Texas Administrative Code Title 30, Chapter 327 (30 TAC 327) Spill Prevention and Control.
- The Texas RQ for petroleum products and used oil is 25 gallons released onto land or any amount that causes sheen on water.
- Reportable Quantities for all other substances are listed in 30 TAC 327.4, which references the EPA List of Lists (EPA 550-B-01-003) available at: http://www.epa.gov/ceppo/pubs/title3.pdf
- The Spill and Leak Response Coordinator shall notify the following:
    - The municipality that operates the local Municipal Separate Storm Sewer System (MS4) if a spill or leak enters public rights-of-way or any type of drainage way or drainage infrastructure within the jurisdiction of the municipality.
    - State of Texas Spill Report Hotline at 1-800-832-8224 if the spill or leak exceeds the RQ.
    - National Spill Response Center at 1-800-424-8802 if the spill or leak exceeds the RQ.
    - TCEQ regional office at normal office hours.

ATTACHMENT B
POTENTIAL SOURCES OF CONTAMINATION

Pollutant	Activity	Response
Fuels, grease, and oils	Trucks, generators, machinery used during construction activity	Secondary containment will be established around all above-ground storage tanks. Any emergency maintenance will utilize drip pans, and no scheduled maintenance will occur onsite.
Sediment	General construction activity	Sediment and erosion control measures will be established and operating prior to any soil disturbance
Sanitary/septic systems	General construction activity	Portable toilets will be located in designated sites within the construction site. Licensed sanitary sewer services will ensure facilities are in working order at all times.

ATTACHMENT C
SEQUENCE OF CONSTRUCTION

1. Install Construction Entrance/Exit per Erosion Control Plans in the Construction Drawings.
2. Install tree protection (as needed).
3. Begin silt fence installation.
4. Strip topsoil and organic materials and store onsite in stockpiles for later use. All stockpiles shall be temporarily seeded and mulched to prevent loss due to erosion and encircled with a silt fence or filter tube. (12.20 acres)
5. Begin site grading. (12.20 acres)
6. Install underground stormwater system.
7. As an area reaches final grade, install permanent stabilization as soon as possible but in no case longer than 14 days from reaching final grade.
8. Any area that will remain undisturbed for 14 days or more shall be temporarily stabilized.
9. Construct pavement/road.
10. Finish grading of all areas. (12.20 acres)
11. Complete permanent stabilization of all disturbed areas. Once a minimum of 70 percent of the vegetated areas have been stabilized, remove the erosion control BMPs.

ATTACHMENT D
TEMPORARY BEST MANAGEMENT PRACTICES AND MEASURES

The following temporary BMPs have been identified on the Erosion Control Plan.

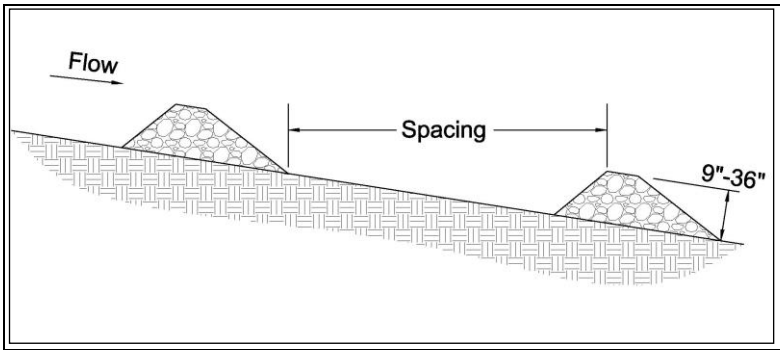
1. Stabilized Construction Exit – Minimizes sediment and aggregate from exiting the project site from equipment trucks and construction vehicles.
2. Silt Fence – Protects downstream property from sediment due to storm events.
3. Rock Check Dam – It reduces velocity of small, concentrated flows and reduces potential for erosion of the ditch.
4. Concrete Washout Pit – To capture the concrete and debris from concrete vehicles and equipment.

See attached for detailed description of the BMP's.

2.0 Erosion Controls

2.1 Check Dam

Erosion Control



Description: Check dams are small barriers consisting of loose rock, rock bags, or organic filter tubes placed across a drainage swale or ditch. They reduce the velocity of small concentrated flows, provide a limited barrier for sediment and reduce the potential for erosion of the swale or ditch.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Heights between 9 inches and 36 inches
- Top of the downstream dam should be at the same elevation as the toe of the upstream dam

ADVANTAGES / BENEFITS:

- Reduced velocities in long drainage swales or ditches
- May be used with other channel protection measures
- Provides some sediment removal

DISADVANTAGES / LIMITATIONS:

- Cannot be used in live stream channels
- Minor ponding upstream of the check dams
- Extensive maintenance or replacement of the dams required after heavy flows or high velocity flows
- Mowing hazard from loose rocks if all rock is not removed at end of construction

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Remove silt when it reaches approximately ⅓ the height of the dam or 12 inches, whichever is less

TARGETED POLLUTANTS

- ◒ Sediment
- ○ Nutrients & Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.30-0.50
(*Depends on soil type*)

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Other Considerations:

- *None*

2.1.1 Primary Use

Check dams are used in long drainage swales or ditches to reduce erosive velocities. They are typically used in conjunction with other channel protection techniques such as vegetation lining and turf reinforcement mats. Check dams provide limited treatment to sediment-laden flows. They are more useful in reducing flow velocities to acceptable levels for stabilization methods. Check dams may be used in combination with stone outlet sediment traps, where the check dams prevent erosion of the swale while the sediment trap captures sediment at the downstream end of the swale.

2.1.2 Applications

Check dams are typically used in swales and drainage ditches along linear projects such as roadways. They can also be used in short swales down a steep slope, such as swales down a highway embankment, to reduce velocities. Check dams shall not be used in live stream channels.

Check dams should be installed before the contributing drainage area is disturbed, so as to mitigate the effects on the swale from the increase in runoff. If the swale itself is graded as part of the construction activities, check dams are installed immediately upon completion of grading to control velocities in the swale until stabilization is completed.

2.1.3 Design Criteria

General Criteria

- Typically, the dam height should be between 9 inches and 36 inches, depending on the material of which they are made. The height of the check dam shall always be less than one-third the depth of the channel.
- Dams should be spaced such that the top of the downstream dam is at the same elevation as the toe of the upstream dam. On channel grades flatter than 0.4 percent, check dams should be placed at a distance that allows small pools to form between each check dam.
- The top of the side of the check dam shall be a minimum of 12 inches higher than the middle of the dam. In addition, the side of the dams shall be embedded a minimum of 18 inches into the side of the drainage ditch, swale or channel to minimize the potential for flows to erode around the side of the dam.
- Larger flows (greater than 2-year, 24-hour design storm) must pass the check dam without causing excessive upstream flooding.
- Check dams should be used in conjunction with other sediment reduction techniques prior to releasing flow offsite.
- Use geotextile filter fabric under check dams of 12 inches in height or greater. The fabric shall meet the following minimum criteria:
    - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 250-lbs.
    - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 135-lbs.
    - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 420-psi.
    - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 20 (max).
- Loose, unconfined soil, wood chips, compost, and other material that can float or be transported by runoff shall not be used to construct check dams.

Rock Check Dams

- Stone shall be well graded with stone size ranging from 3 to 6 inches in diameter for a check dam height of 24 inches or less. The stone size range for check dams greater than 24 inches is 4 to 8 inches in diameter.
- Rock check dams shall have a minimum top width of 2 feet with side slopes of 2:1 or flatter.

Rock Bag Check Dams

- Rock bag check dams should have a minimum top width of 16 inches.
- Bag length shall be 24 inches to 30 inches, width shall be 16 inches to 18 inches and thickness shall be 6 inches to 8 inches and having a minimum weight of 40 pounds.
- Minimum rock bag dam height of 12 inches would consist of one row of bags stacked on top of two rows of bag. The dam shall always be one more row wide than it is high, stacked pyramid fashion.
- Bags should be filled with pea gravel, filter stone, or aggregate that is clean and free of deleterious material.
- Sand bags shall not be used for check dams, due to their propensity to break and release sand that is transported by the concentrated flow in the drainage swale or ditch.
- Bag material shall be polypropylene, polyethylene, polyamide or cotton burlap woven fabric, minimum unit weight 4-ounces-per-square-yard, Mullen burst strength exceeding 300-psi as determined by ASTM D3786, Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, and ultraviolet stability exceeding 70 percent.
- PVC pipes may be installed through the dam to allow for controlled flow through the dam. Pipe should be schedule 40 or heavier polyvinyl chloride (PVC) having a nominal internal diameter of 2 inches.

Sack Gabion Check Dams

- Sack gabion check dams may be used in channels with a contributing drainage area of 5 acres or less.
- Sack gabions shall be wrapped in galvanized steel, woven wire mesh. The wire shall be 20 gauge with 1 inch diameter, hexagonal openings.
- Wire mesh shall be one piece, wrapped around the rock, and secured to itself on the downstream side using wire ties or hog rings.
- Sack gabions shall be staked with ¾ inch rebar at a maximum spacing of three feet. Each wire sack shall have a minimum of two stakes.
- Stone shall be well graded with a minimum size range from 3 to 6 inches in diameter.

Organic Filter Tube Check Dams

- Organic filter tubes may be used as check dams in channels with a contributing drainage area of 5 acres or less.
- Organic filter tubes shall be a minimum of 12 inches in diameter.
- Filter material used within tubes to construct check dams shall be limited to coir, straw, aspen fiber and other organic material with high cellulose content. The material should be slow to decay or leach nutrients in standing water.
- Staking of filter tubes shall be at a maximum of 4 foot spacing and shall alternate through the tube and on the downstream face of the tube.
- Unless superseded by requirements in this section, filter tubes and filter material shall comply with the

criteria in *Section 3.6 Organic Filter Tubes*.

2.1.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.9 Check Dam (Rock). Specifications are also available in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004), Item 506.2.A and Item 506.4.C.1.

2.1.5 Inspection and Maintenance Requirements

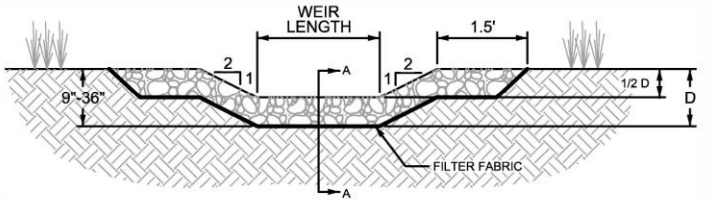
Check dams should be inspected regularly (at least as often as required by the TPDES Construction General Permit). Silt must be removed when it reaches approximately 1/3 the height of the dam or 12 inches, whichever is less. Inspectors should monitor the edges of the dam where it meets the sides of the drainage ditch, swale or channel for evidence of erosion due to bypass or high flows. Eroded areas shall be repaired. If erosion continues to be a problem, modifications to the check dam or additional controls are needed.

Care must be used when taking out rock check dams in order to remove as much rock as possible. Loose rock can create an extreme hazard during mowing operations once the area has been stabilized.

2.1.6 Example Schematics

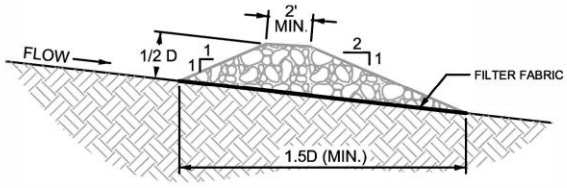
The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be adapted for the site by the designer. Dimensions and notes appropriate for the application must also be added by the designer.



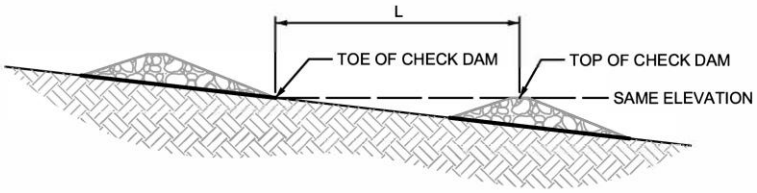
ROCK CHECK DAM VIEW LOOKING UPSTREAM

N.T.S.



CROSS SECTION A-A

N.T.S.



SPACE BETWEEN ROCK CHECK DAMS

N.T.S.

NOTES:
ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAM.

-HEIGHT OF CHECK DAMS (D) BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS

-SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT THE SAME ELEVATION AS TOE OF UPSTREAM DAM

Revised 2019

Figure 2.1 Schematics of Rock Check Dams
(Source: Modified from Stormwater Management Manual for Western Washington)

ROCK CHECK DAM GENERAL NOTES:

1. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.9 CHECK DAM (ROCK).

2. STONE SHALL BE WELL GRADED WITH SIZE RANGE FROM 1 1/2 TO 3 1/2 INCHES IN DIAMETER DEPENDING ON EXPECTED FLOWS.

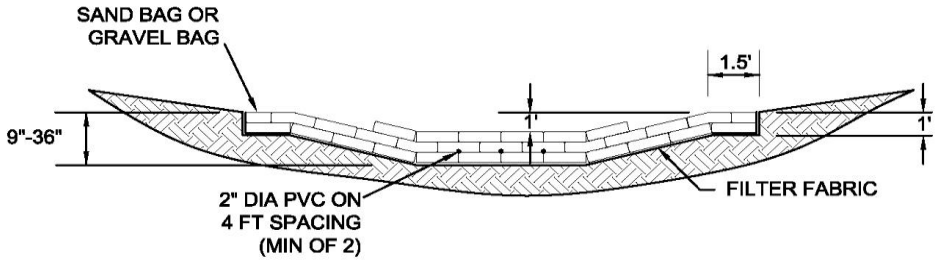
3. THE CHECK DAM SHALL BE INSPECTED AS SPECIFIED IN THE SWPPP AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

4. WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

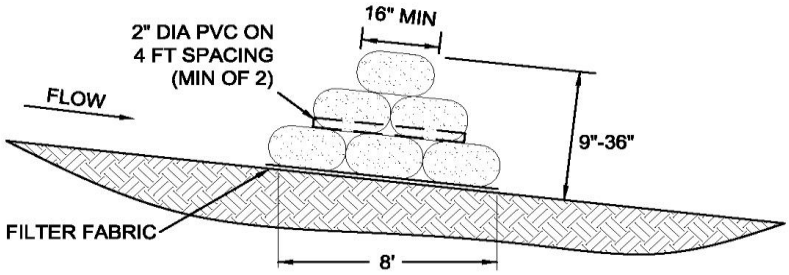
5. WHEN THE SITE HAS ACHIEVED FINAL STABILIZATION OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED, THE CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

Revised 2019

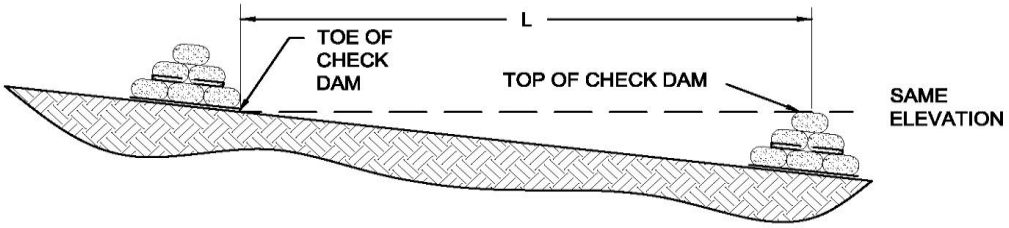
Figure 2.2 Rock Check Dams Schematic General Notes
(Source: Modified from Stormwater Management Manual for Western Washington)



ROCK BAG CHECK DAM VIEW LOOKING UPSTREAM
N.T.S.



CROSS SECTION OF ROCK BAG CHECK DAM
N.T.S.

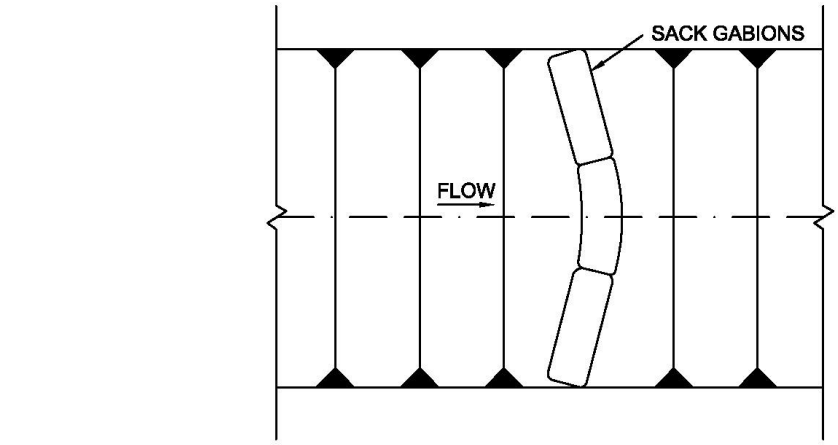


SPACING BETWEEN ROCK BAG CHECK DAMS
N.T.S.

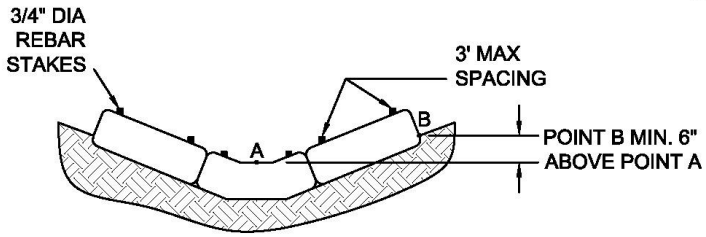
NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

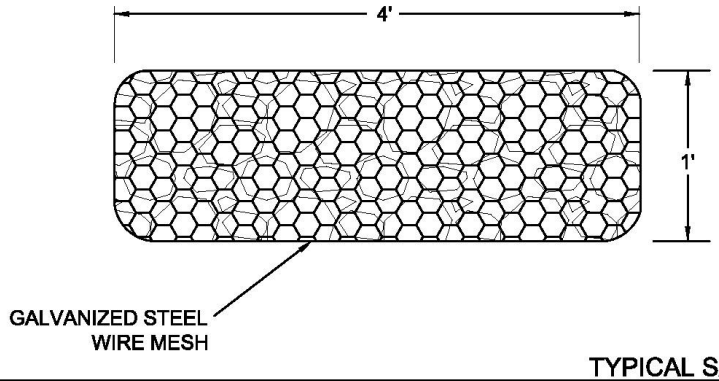
Figure 2.3 Schematics of Rock Bag Check Dams



SACK GABION CHECK DAM PLAN VIEW
N.T.S.



SACK GABION CHECK DAM VIEW LOOKING UPSTREAM
N.T.S.

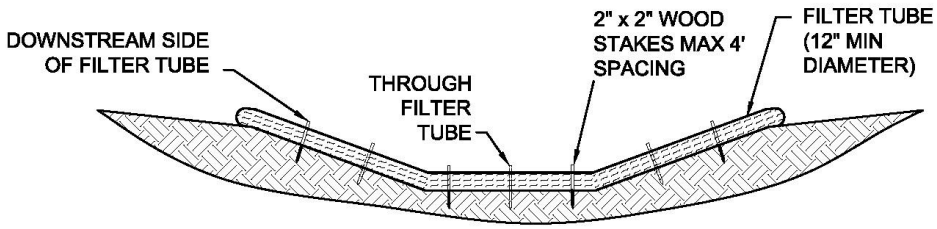


TYPICAL SACK GABION
N.T.S.

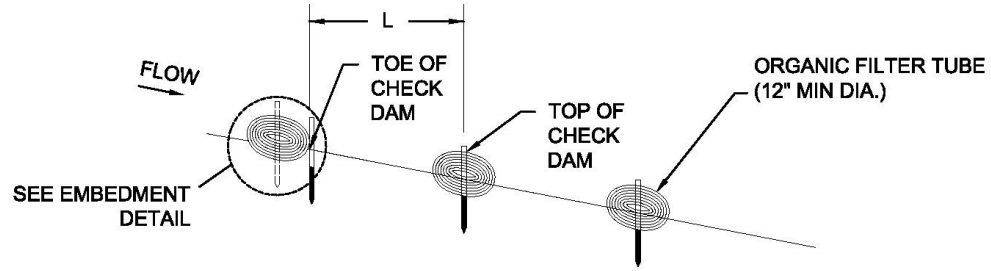
NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

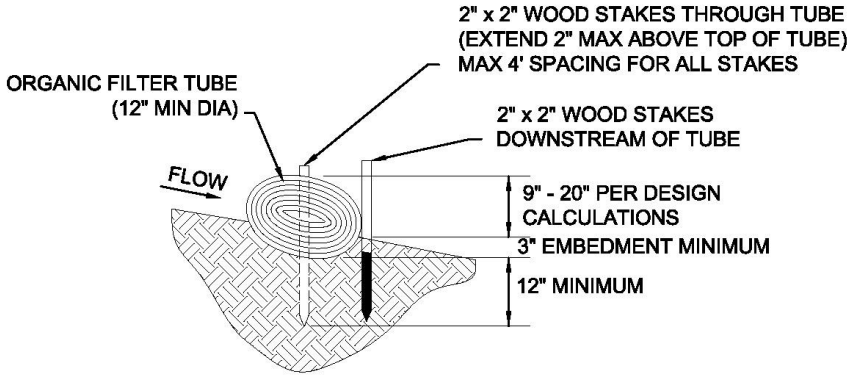
Figure 2.4 Schematics of Sack Gabion Check Dams
(Source: Modified from Texas Department of Transportation Detail Sheet EC (2)-93)



ORGANIC FILTER TUBE CHECK DAM VIEW LOOKING UPSTREAM
N.T.S.



ORGANIC FILTER TUBE CHECK DAM PROFILE
N.T.S.



EMBEDMENT DETAIL FOR ORGANIC FILTER TUBE CHECK DAM
N.T.S.

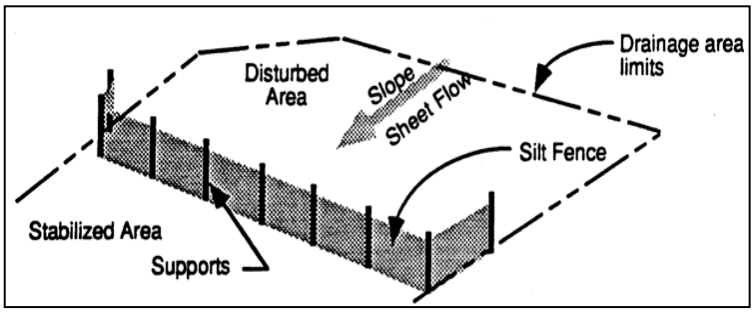
NOTES: ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

- HEIGHT OF CHECK DAMS BASED ON SWALE OR DITCH DIMENSIONS AND FLOW CONDITIONS.
- SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.

Figure 2.5 Schematics of Organic Filter Tube Check Dams
(Source: Modified from City of Plano BMP S-7)

3.10 Silt Fence

Sediment Control



Description: A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between metal posts with the lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Maximum drainage area of 0.25 acre per 100 linear feet of silt fence
- Maximum 200 feet distance of flow to silt fence; 50 feet if slope exceeds 10 percent
- Minimum fabric overlap of 3 feet at abutting ends; join fabric to prevent leakage
- Turn end of silt fence line upslope a minimum of 10 feet
- Install stone overflow structure at low points or spaced at approximately 300 feet if no apparent low point

ADVANTAGES / BENEFITS:

- Economical means to treat sheet flow
- Most effective with coarse to silty soil types

DISADVANTAGES / LIMITATIONS:

- Limited effectiveness with clay soils due to clogging
- Localized flooding due to minor ponding at the upslope side of the silt fence
- Not for use as check dams in swales or low areas subject to concentrated flow
- Not for use where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches
- Can fail structurally under heavy storm flows, creating maintenance problems and reducing effectiveness

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Repair undercutting, sags and other fence failures
- Remove sediment before it reaches half the height of the fence
- Repair or replace damaged or clogged filter fabric

TARGETED POLLUTANTS

- ● Sediment
- ○ Nutrients & Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

- **Perimeter Control**
- **Slope Protection**
- **Sediment Barrier**
- **Channel Protection**
- **Temporary Stabilization**
- **Final Stabilization**
- **Waste Management**
- **Housekeeping Practices**

Fe=0.50-0.75
(*Depends on soil type*)

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Other Considerations:

- *Effects of ponding or the redirection of flow onto adjacent areas and property*

3.10.1 Primary Use

Silt fence is normally used as a perimeter control on the down slope side of disturbed areas and on side slopes where stormwater may runoff the area. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may be occur (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

3.10.2 Applications

Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fences should be used with caution in areas that have predominantly clay soil types. In this latter instance, a soils engineer or soil scientist should confirm the suitability of silt fence for that application. Additional controls may be needed to remove fine silts and clay soils suspended in stormwater.

3.10.3 Design Criteria

- Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- Silt fence can interfere with construction operations; therefore, planning of access routes onto the site is critical.
- Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- Maximum slope adjacent to the fence shall be 2:1.
- Silt fences shall not be used where there is a concentration of water in a channel, drainage ditch or swale, nor should it be used as a control on a pipe outfall.
- If 50 percent or less soil, by weight, passes the U.S. Standard Sieve No. 200; select the apparent opening size (A.O.S.) to retain 85percent of the soil.
- If 85 percent or more of soil by weight, passes the U.S. Standard Sieve No. 200, silt fences shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodiblity of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.
- Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- Filter stone for overflow structure shall be 1 ½ inches washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- Silt fence fabric must meet the following minimum criteria:
    - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
    - Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
    - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.

  - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 30(max) to No. 100 (min).
  - Ultraviolet Resistance, ASTM D4355 Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc Type Apparatus, Minimum 70 percent.
- Fence posts shall be steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum. Wood posts may be used depending on anticipated length of service and provided they are 4 feet in length minimum and have a nominal cross section of 2 inches by 4 inches for pine or 2 inches by 2 inches for hardwoods.
- Silt fence shall be supported by steel wire fence fabric as follows:
  - 4 inch x 4 inch mesh size, W1.4 /1.4, minimum 14 gauge wire fence fabric;
  - Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
  - Standard 2 inch x 2 inch chain link fence fabric; or
  - Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- Silt Fence shall consist of synthetic fabric supported by wire mesh and steel posts set a minimum of 1-foot depth and spaced not more than 6-feet on center.
- A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs. If soil conditions prevent a minimum toe-in depth of 6 inches or installation of support post to depth of 12 inches, silt fences shall not be used.
- Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- The last 10 feet (or more) at the ends of a line of silt fence shall be turned upslope to prevent bypass of stormwater. Additional upslope runs of silt fence may be needed every 200 to 400 linear feet, depending on the traverse slope along the line of silt fence.

3.10.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.5 Silt Fence and in the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDot 2004) Item 506.2.J and Item 506.4.C.9.

The American Society for Testing and Materials has established standard specifications for silt fence materials (ASTM D6461) and silt fence installation (ASTM D6462).

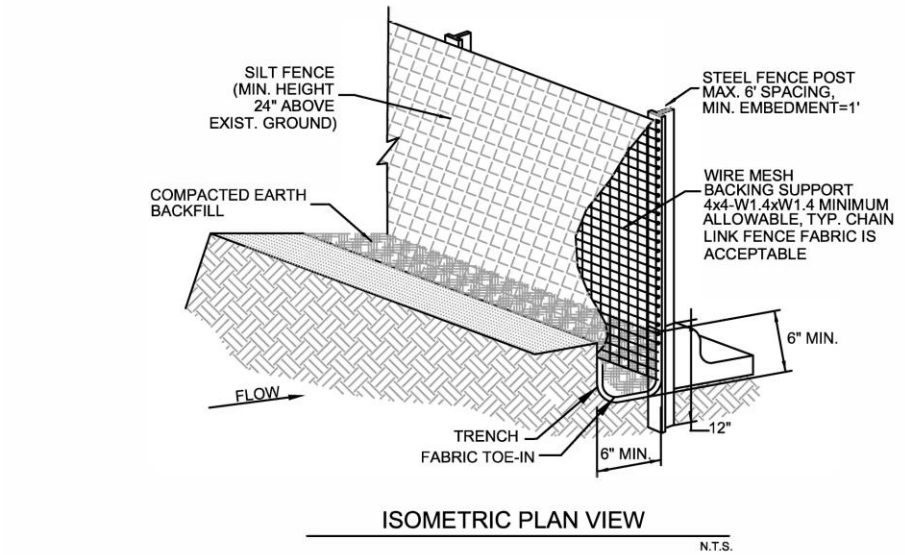
3.10.5 Inspection and Maintenance Requirements

Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed before it reaches half the height of the fence. In addition, determine the source of excess sediment and implement appropriate measures to control the erosion. Damaged or clogged fabric must be repaired or replaced as necessary.

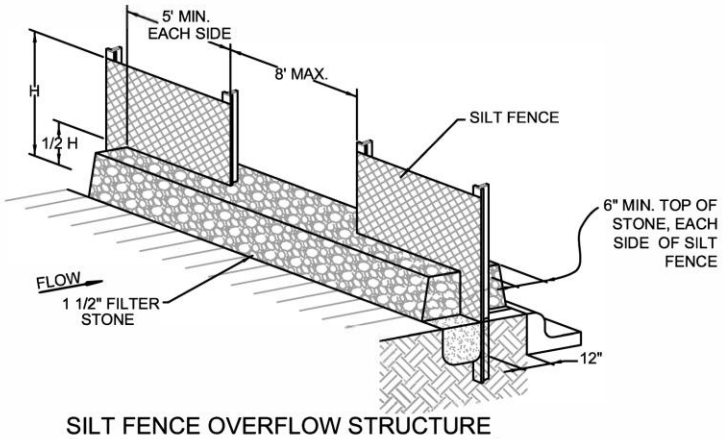
3.10.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



ISOMETRIC PLAN VIEW
N.T.S.



SILT FENCE OVERFLOW STRUCTURE
N.T.S.

Revised 2018

Figure 3.30 Schematics of Silt Fence

SILT FENCE GENERAL NOTES:

1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FEET WHERE NO LOW POINT IS APPARENT.

2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE AT THE ENDS. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.

3. POST WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

4. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.

5. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

6. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH SUPPORT POST OR TO WIRE BACKING, WHICH IN TURN IS ATTACHED TO THE FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

7. INSPECTION SHALL BE AS SPECIFIED IN THE SWPPP. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.

8. SILT FENCE SHALL BE REMOVED WHEN FINAL STABILIZATION IS ACHIEVED OR ANOTHER EROSION OR SEDIMENT CONTROL DEVICE IS EMPLOYED.

9. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.

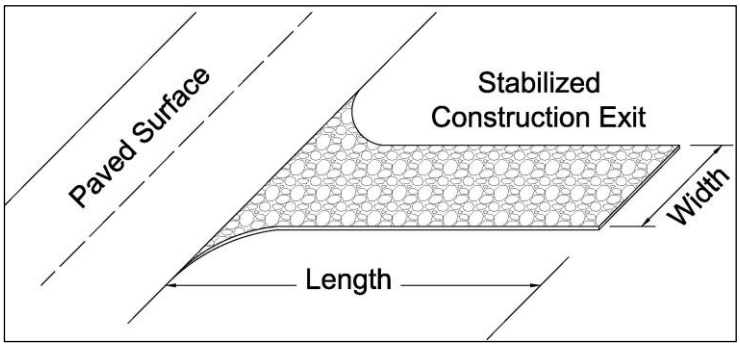
10. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.5

Revised 2018

Figure 3.31 Silt Fence General Notes

3.11 Stabilized Construction Exit

Sediment Control



Description: A stabilized construction exit is a pad of crushed stone, recycled concrete or other rock material placed on geotextile filter cloth to dislodge soil and other debris from construction equipment and vehicle tires prior to exiting the construction site. The object is to minimize the tracking of soil onto public roadways where it will be suspended by stormwater runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Slope exit away from offsite paved surface
- Minimum width and length dependent on size of disturbed area, which correlates to traffic volume
- 6 inches minimum thickness of stone layer
- Stone of 3 to 5 inches in size
- Add a wheel cleaning system when inspections reveal the stabilized exit does not prevent tracking

ADVANTAGES / BENEFITS:

- Reduces tracking of soil onto public streets
- Directs traffic to a controlled access point
- Protects other sediment controls by limiting the area disturbed

DISADVANTAGES / LIMITATIONS:

- Effectiveness dependent on limiting ingress and egress to the stabilized exit
- A wheel washing system may also be required to remove clay soil from tires, particularly in wet conditions

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Replace rock when sediment in the void area between the rocks is visible on the surface
- Periodically re-grade and top dress with additional stone to maintain efficiency

TARGETED POLLUTANTS

- ◒ Sediment
- ○ Nutrients & Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

Perimeter Control
Slope Protection
Sediment Barrier
Channel Protection
Temporary Stabilization
Final Stabilization
Waste Management
Housekeeping Practices

Fe=N/A

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Other Considerations:

- *None*

3.11.1 Primary Use

Stabilized construction exits are used to remove soil, mud and other matter from vehicles that drive off of a construction site onto public streets. Stabilized exits reduce the need to remove sediment from streets. When used properly, they also control traffic by directing vehicles a single (or two for larger sites) location. Controlling traffic onto and off of the site reduces the number and quantity of disturbed areas and provides protection for other sediment controls by decreasing the potential for vehicles to drive over the control.

3.11.2 Applications

Stabilized construction exits are used on all construction sites with a disturbed area of one acre or larger and are a recommended practice for smaller construction sites. A stabilized exit is used on individual residential lots until the driveway is placed. Stabilized construction exits may be used in conjunction with wheel cleaning systems as described in *Section 3.16 Wheel Cleaning Systems*.

3.11.3 Design Criteria

- Limit site access to one route during construction, if possible; two routes for linear and larger projects.
- Prevent traffic from avoiding or shortcutting the full length of the construction exit by installing barriers. Barriers may consist of silt fence, construction safety fencing, or similar barriers.
- Design the access point(s) to be at the upslope side of the construction site. Do not place construction access at the lowest point on the construction site.
- Stabilized construction exits are to be constructed such that drainage across the exit is directed to a controlled, stabilized outlet onsite with provisions for storage, proper filtration, and removal of wash water.
- The exit must be sloped away from the paved surface so that stormwater from the site does not discharge through the exit onto roadways.
- Minimum width of exit shall be 15 feet.
- The construction exit material shall be a minimum thickness of 6 inches. The stone or recycled concrete used shall be 3 to 5 inches in size with little or no fines.
- The geotextile fabric must meet the following minimum criteria:
    - Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 300 lbs.
    - Puncture Strength, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 120 lbs.
    - Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 600 psi.
    - Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 40 (max).
- Rock by itself may not be sufficient to remove clay soils from wheels, particularly in wet conditions. When necessary, vehicles must be cleaned to remove sediment prior to entering paved roads, streets, or parking lots. Refer to *Section 3.16 Wheel Cleaning Systems* for additional controls.
- Using water to wash sediment from streets is prohibited
- Minimum dimensions for the stabilized exit shall be as follows:

Table 3.9 Minimum Exit Dimensions		
Disturbed Area	*Min. Width of Exit*	*Min. Length of Exit*
< 1 Acre	15 feet	20 feet
≥ 1 Acre but < 5 Acres	25 feet	50 feet
≥ 5 Acres	30 feet	50 feet

- If a wheel cleaning system is used, the width of the stabilized exit may be reduced to funnel traffic into the system. Refer to *Section 3.16 Wheel Cleaning*.

3.11.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.10 Stabilized Construction Entrance and in the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT 2004) Item 506.2.E and Item 506.4.C.5.

3.11.5 Inspection and Maintenance Requirements

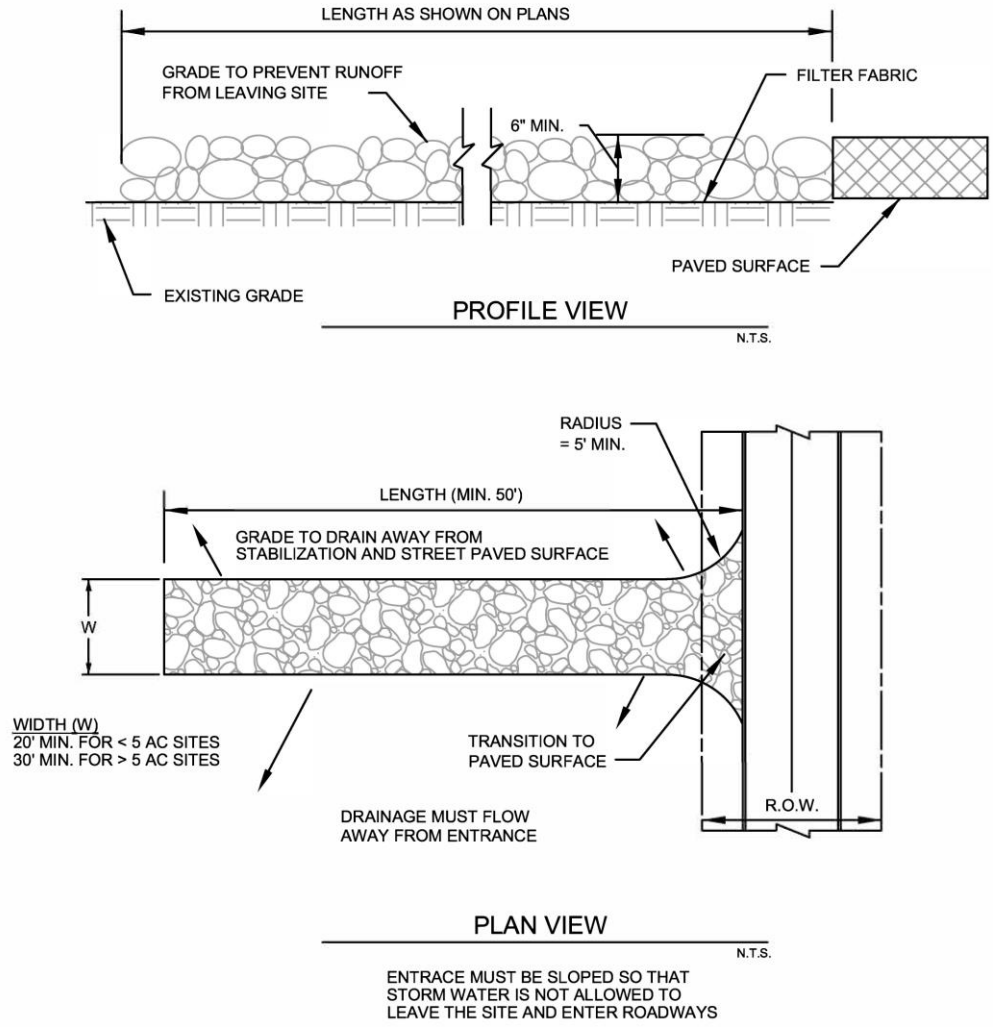
Construction exits should be inspected regularly (at least as often as required by the TPDES Construction General Permit). The stabilized construction exit shall be maintained in a condition that prevents tracking or flow of sediment onto paved surfaces. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the exit from diminishing. The rock shall be re-graded when ruts appear. Additional rock shall be added when soil is showing through the rock surface.

Additional controls are needed if inspections reveal a properly installed and maintained exit, but tracking of soil outside the construction area is still evident. Additional controls may be daily sweeping of all soil spilled, dropped, or tracked onto public rights-of-way or the installation of a wheel cleaning system.

3.11.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.



Revised 2018

Figure 3.32 Schematics of Stabilized Construction Exit

STABILIZED CONSTRUCTION ENTRANCE GENERAL NOTES:

1. SEE NCTCOG STANDARD SPECIFICATIONS (2017), SECTION 202.11

2. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.

3. STONE SHALL BE 3 TO 5 INCH DIAMETER COURSE AGGREGATE, NO CRUSHED PORTLAND CEMENT CONCRETE ALLOWED.

4. LENGTH SHALL BE SHOWN ON PLANS, WITH A MINIMUM LENGTH OF 50 FEET.

5. THE WIDTH SHALL BE NO LESS THAN 20' FOR SITES LESS THAN 5 AC, AND 30' FOR SITES GREATER THAN 5 AC, AT ALL POINTS OF INGRESS OR EGRESS.

6. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

8. THE ENTRANCE MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

9. INSPECTION SHALL BE SPECIFIED IN THE SWPPP.

Revised 2018

Figure 3.33 Stabilized Construction Entrance General Notes

ATTACHMENT F
STRUCTURAL PRACTICES

BMP's will collect sedimentation and debris from exposed areas prior to discharge. The structural practices that will be implemented are silt fence, construction exits, rock check dams, vegetation and other temporary BMPs as needed.

The placement of silt fence along the southeast side of the property will prevent downstream properties from sediment leaving the site.

ATTACHMENT G
DRAINAGE AREA MAP

SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- EXISTING DRAINAGE AREA LABEL — BASIN NAME / ACRES / Q100 (cfs) — DA 4 / 1.00 ac.
- EXISTING DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- EXISTING STORM PIPE
- PROPERTY BOUNDARY
- SPUR CREEK BOULEVARD R.O.W.

NOTE TO CONTRACTOR

THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

DRAINAGE AREA TABLE

DRAINAGE AREA ID	PERVIOUS AREA (SQUARE FOOTAGE)	PERVIOUS AREA (ACREAGE)	IMPERVIOUS AREA (SQUARE FOOTAGE)	IMPERVIOUS AREA (ACREAGE)
DA 1	446,338 SF	10.25 ACRES	15,870 SF	0.36 ACRES
DA 2	1,086,020 SF	24.47 ACRES	25740 SF	0.59 ACRES

DRAINAGE AREA CALCULATIONS (EXISTING)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	10.61	10.0	0.344	4.9	17.9	0.395	7.25	30.4	0.436	8.78	40.6	0.506	11.23	60.3	
DA 2	25.06	10.0	0.340	4.9	41.8	0.391	7.25	71.0	0.431	8.78	94.8	0.501	11.23	141.1	

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER
SURVEYOR

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY

TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

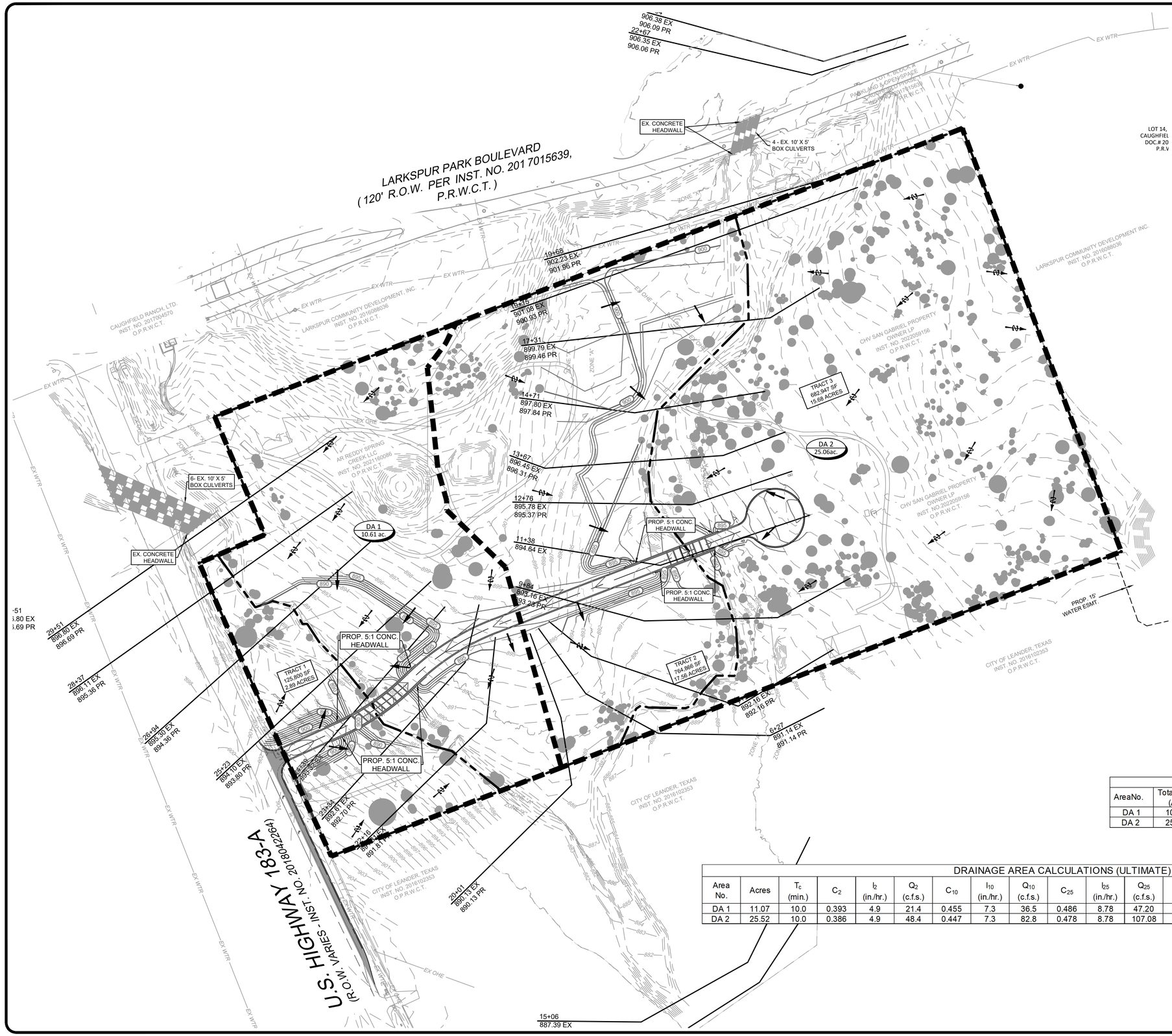
JOB NUMBER: CHV20001
ISSUE DATE: 11/27/2023

EXISTING DRAINAGE AREA MAP

SHEET:
C5.0

FILENAME: CHV20001_C5.0 EXISTING DRAINAGE AREA MAP.dwg
PLOTTED BY: Preston'Isa Gaulden
PLOTTED DATE: 11/27/2023

FILE PATH: K:\Jobs\CHV20001_LibertyHill135\Drawings\07_CORRIDOR PLANS\03 - Production\CHV20001_C5.0 EXISTING DRAINAGE AREA MAP.dwg



SITE BENCHMARKS

BM NO. 1 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET AT THE NORTHEAST CORNER OF A CURB INLET IN THE NORTH LINE OF LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 175 FEET IN A SOUTHWESTERLY DIRECTION FROM THE SOUTHWEST CORNER OF THE LIMITS OF A CONCRETE SIDEWALK ADJACENT TO THE NORTH LINE OF LARKSPUR BOULEVARD.

ELEVATION = 911.62' (NAD '83)

BM NO. 2 THE SITE BENCHMARK IS AN "X" CUT WITH BOX SET ON THE BACK OF CURB THE EASTERN NOSE OF A MEDIAN DIVIDING LARKSPUR PARK BOULEVARD, AND BEING APPROXIMATELY 680 FEET IN AN EASTERLY DIRECTION FROM THE EASTERN PAVING SEAM LINE AT THE INTERSECTION OF LARKSPUR PARK BOULEVARD AND US HIGHWAY 183.

ELEVATION = 918.87' (NAD '83)

LEGEND

- PROPOSED DRAINAGE AREA LABEL — BASIN NAME / ACRES / Q100 (cfs) — DA 4 / 1.00 ac.
- PROPOSED DRAINAGE AREA DIVIDE
- EXISTING DRAINAGE FLOW ARROW
- PROPOSED DRAINAGE FLOW ARROW
- EXISTING CONTOUR — 500
- PROPOSED CONTOUR — 500
- EXISTING STORM PIPE
- PROPOSED STORM PIPE
- PROPERTY BOUNDARY

NOTE TO CONTRACTOR

EXISTING PRIVATE AND PUBLIC STORM SEWER AND UTILITY INFRASTRUCTURE ARE SHOWN PER RECORD DRAWING PLANS. THE CONTRACTOR SHALL FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES (WHETHER SHOWN ON PLANS OR NOT) PRIOR TO COMMENCING CONSTRUCTION. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM LOCATIONS SHOWN ON THE PLANS, THE CONTRACTOR SHALL CONTACT THE PROJECT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

NOTE

MAXIMUM OF 20% IMPERVIOUS COVER PER LOT, OTHERWISE STORMWATER MANAGEMENT CONTROLS SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED BY OWNER. IF IMPERVIOUS COVER IS PROPOSED TO EXCEED MAXIMUM PERCENTAGE ALLOWED, CONTACT WILLIAMSON COUNTY FLOODPLAIN ADMINISTRATION TO REVIEW THE STORMWATER MANAGEMENT CONTROL PROPOSED ON LOT

IMPERVIOUS AREA TABLE

AreaNo.	Total area (Ac)	Pervious Area (SF)	Pervious Area (AC)	Impervious Area (SF)	Impervious Area (AC)
DA 1	10.61	433680.33	9.96	28491	0.65
DA 2	25.52	1063961.80	24.43	47689	1.09

DRAINAGE AREA CALCULATIONS (ULTIMATE)

Area No.	Acres	T_c (min.)	C_2	I_2 (in./hr.)	Q_2 (c.f.s.)	C_{10}	I_{10} (in./hr.)	Q_{10} (c.f.s.)	C_{25}	I_{25} (in./hr.)	Q_{25} (c.f.s.)	C_{100}	I_{100} (in./hr.)	Q_{100} (c.f.s.)	Comments
DA 1	11.07	10.0	0.393	4.9	21.4	0.455	7.3	36.5	0.486	8.78	47.20	0.557	11.23	69.24	Drains to the creek line
DA 2	25.52	10.0	0.386	4.9	48.4	0.447	7.3	82.8	0.478	8.78	107.08	0.549	11.23	157.28	Drains to the creek line

Know what's below. Call before you dig.

GRAPHIC SCALE
0 100 200 FEET
SCALE: 1" = 100'

11/27/2023

STATE OF TEXAS
SHEA O. KIRKMAN
91865
LICENSED PROFESSIONAL ENGINEER

AR REDDY SPRING CREEK LLC
6253 CORVARA COURT
FRISCO, TX 75035
512-761-8025

CHV SAN GABRIEL PROPERTY OWNER LP
4849 GREENVILLE AVE, SUITE 1545
DALLAS, TEXAS 75206
214-435-7510

LIBERTY HILL 35 PRIVATE ACCESS DRIVEWAY
TRACT 1-3
CITY OF LIBERTY HILL
WILLIAMSON COUNTY, TEXAS

REV:	DATE:	DESCRIPTION:

kirkman ENGINEERING
KIRKMAN ENGINEERING, LLC
5200 STATE HIGHWAY 121
COLLEYVILLE, TX 76034
TEXAS FIRM NO. 15874

JOB NUMBER: CHV20001

ISSUE DATE: 11/27/2023

ULTIMATE DRAINAGE AREA MAP

SHEET:
C5.1

FILENAME: CHV20001_C5.1 PROPOSED DRAINAGE AREA MAP.dwg
PLOTTED BY: Preciosha Gadhia
PLOTTED DATE: 11/27/2023
FILE PATH: K:\Work\CHV20001_Liberty Hill\15\Drawings\07_CONSTRUCTION PLANS\03 - Production\K:\Work\CHV20001_Liberty Hill\15\Drawings\07_CONSTRUCTION PLANS\03 - Production\CHV20001_C5.1 PROPOSED DRAINAGE AREA MAP.dwg

ATTACHMENT I
INSPECTION AND MAINTENANCE FOR BMPS

TEMPORARY BMP INSPECTION AND MAINTENANCE WORKSHEET

Complete this worksheet every seven days; OR, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): Inspection Date: Day: Time: am/pm
Scope of inspection (circle one): 14 Day Inspection or Weekly Inspection
Day of week normally conducted: 0.5 inch Rainfall Event: yes / no

Type	Inspected? (Y/N)	Areas of Concern
Disturbed Soil Areas		
Sediment & Erosion Controls		
Entrance(s) and Exit(s)		

BMP & Location	OK? (Y/N)	BMP Failure? (describe)	BMP Failure? (describe)

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: LANGFORD STUBER
CHV SAN GABRIEL PROPERTY OWNER LP

Date: 11-02-2023

Signature: Langford Stuber

ATTACHMENT I
INSPECTION AND MAINTENANCE FOR BMPS

TEMPORARY BMP INSPECTION AND MAINTENANCE WORKSHEET

Complete this worksheet every seven days; OR, every 14 days and within 24 hours of a 0.5 inch rainfall event, and retain in your SWP3.

Inspector (name/title): Inspection Date: Day: Time: am/pm
Scope of inspection (circle one): 14 Day Inspection or Weekly Inspection
Day of week normally conducted: 0.5 inch Rainfall Event: yes / no

Type	Inspected? (Y/N)	Areas of Concern
Disturbed Soil Areas		
Sediment & Erosion Controls		
Entrance(s) and Exit(s)		

BMP & Location	OK? (Y/N)	BMP Failure? (describe)	BMP Failure? (describe)

"I certify that the facility or site is in compliance with the stormwater pollution prevention plan and this permit."

I further certify that I am authorized to sign this report under TCEQ rules at 30 TAC 305.128 (relating to Signatories to Reports)

Name/Title: RAJU PADIGALA
AR REDDY SPRING CREEK LLC

Date: 11-02-2023

Signature: Raju Padigala (Nov 8, 2023 12:24 CST)

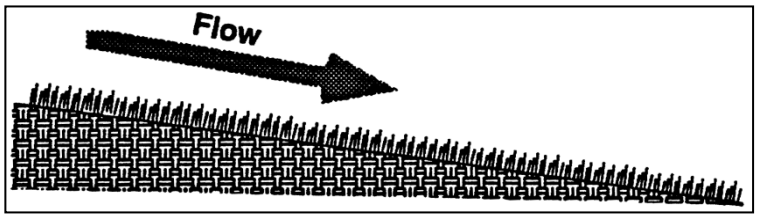
ATTACHMENT J
SCHEDULE OF INTERIM AND PERMANENT SOIL STABILIZATION PRACTICES

The following soil stabilization practices shall be used:

1. All stockpiles shall be temporarily seeded and mulched to prevent loss due to erosion and encircled with a silt fence or filter tube.
2. As an area reaches final grade, install permanent stabilization as soon as possible but in no case longer than 14 days from reaching final grade.
3. Any area that will remain undisturbed for 14 days or more shall be temporarily stabilized.
4. Complete permanent stabilization of all disturbed areas. Once a minimum of 70 percent of the vegetated areas have been stabilized, remove the erosion control BMPs.

2.9 Vegetation

Erosion Control



Description: Vegetation, used as an erosion control, is the sowing or sodding of grasses, small grains, or legumes to provide temporary and final vegetative stabilization for disturbed areas.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Specify preparation of the soil surface before seeding or sodding
- Minimum of 4 to 6 inches of top soil required, depending on subsurface conditions
- Specify soil amendments depending on soil conditions
- Select seed or sod species appropriate for the climate, season, and soil

ADVANTAGES / BENEFITS:

- More effective and easier to maintain than sediment controls during a long construction period
- May be used for temporary or final stabilization

DISADVANTAGES / LIMITATIONS:

- Not appropriate for areas with heavy pedestrian, vehicular traffic, or concentrated, high velocity flow
- May require days to weeks for adequate establishment
- Alternate erosion control is needed until vegetation is established

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Protect newly seeded areas from excessive runoff, high velocity flow, and traffic until vegetation is established
- Water and fertilize until vegetation is established
- Reseed and/or provide mulch or another control for bare spots
- Rake accumulations of sediment from the vegetation

TARGETED POLLUTANTS

- ● Sediment
- ◒ Nutrients & Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

Perimeter Control

Slope Protection

Sediment Barrier

Channel Protection

Temporary Stabilization

Final Stabilization

Waste Management

Housekeeping Practices

Fe=0.90
(*When fully established; lower while vegetation is first growing*)

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

Other Considerations:

- *Design is unique to soil and other conditions at each site*
- *Watering and other maintenance required until vegetation is established*

2.9.1 Primary Use

Vegetation is used as a temporary or final stabilization measure for areas disturbed by construction. As a temporary control, vegetation is used to stabilize stockpiles, earthen dikes, and barren areas that are inactive for longer than two weeks. As a final control at the end of construction, grasses and other vegetation provide good protection from erosion along with some filtering for overland runoff. Subjected to acceptable runoff velocities, vegetation can provide a positive method of long-term stormwater management as well as a visual amenity to the site.

Other control measures may be required to assist during the establishment of vegetation. These other controls include erosion control blankets, mulching, swales, and dikes to direct flow around newly seeded areas and proper grading to limit runoff velocities during construction.

2.9.2 Applications

Vegetation effectively reduces erosion in channels and swales and on stockpiles, dikes, and mild to medium slopes. Vegetative strips can provide some protection and sediment trapping when used as a perimeter control for utility and site development construction. Refer to *Section 3.15 Vegetated Filter Strips and Buffers* for more information.

In many cases, the initial cost of temporary seeding may be high compared to tarps or covers for stockpiles or other barren areas subject to erosion. This initial cost should be weighed with the amount of time the area is to remain inactive, since vegetation is more effective and the maintenance cost for vegetated areas is much less than most structural controls.

2.9.3 Design Criteria

General

- Vegetation is a highly effective erosion control when the vegetation is fully established. Until then, additional controls are needed. Sediment controls should not be removed from vegetated areas until the vegetation is established.
- On grades steeper than 20:1 (5 percent), anchored mulch or erosion control blankets are required to protect seeded areas until vegetation is established. Refer to *Section 2.5 Mulching* and *Section 2.3 Erosion Control Blankets* for design criteria.
- Vegetation may be used by itself for channel protection when the channel grade is less than 2 percent and the temporary control design storm (2-year, 24-hour) and the conveyance storm (25-year, 24-hour) flow velocities are less than 6 feet per second.
- If the velocity of the temporary control design storm is greater than 2 feet per second, erosion control blankets shall be used in the channel while vegetation is being established. Turf reinforcement mats are required when the velocity exceeds 6 feet per second. Refer to *Section 2.3 Erosion Control Blankets* and *Section 2.8 Turf Reinforcement Mats* for design criteria.
- Stabilization of channels with vegetation is limited to channels that have side slopes of 3:1 or flatter.
- On cut/fill slopes and channels designed to receive temporary or final vegetation, establishment of vegetation shall be initiated immediately after completing grading of the cut/fill slope or channel, and in no case later than 14 days after completion of grading on these features. It is not acceptable to delay establishing vegetation on these highly-erodible areas until completion of construction activities and stabilization of the remainder of the site.

Surface Preparation

- Unless infeasible, remove and stockpile existing topsoil at the start of grading activities. Store topsoil in a series of small stockpiles instead of one large stockpile to decrease the loss of aerobic soil micro-organisms during stockpiling.

- Interim or final grading must be completed prior to seeding or sodding.
- To minimize soil compaction of areas to be vegetated, limit vehicle and equipment traffic in these areas to the minimum necessary to accomplish grading.
- Install all necessary erosion structures such as dikes, swales, diversions, etc. prior to seeding or sodding.
- Spread stockpiled topsoil evenly over the disturbed area to be vegetated.
- Depth of topsoil shall be a minimum of 4 inches, with 6 inches required where the topsoil is over rock, gravel or otherwise unsuitable material for root growth. After spreading stockpiled topsoil, provide additional top soil as needed to achieve these depths.
- Compost Manufactured Topsoil as specified in TxDOT Special Specification 1001 may be used to achieve the specified depths or when it's infeasible to stockpile topsoil. Topsoil may also be acquired from another construction site if there is no space to stockpile the topsoil at that site.
- Topsoil shall have an organic content of 10 to 20 percent using ASTM D2974 Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
- Topsoil that does not meet the organic content requirement shall be amended with General Use Compost as specified in TxDOT Special Specification 1001. Amendment should be three parts of topsoil to one part compost by volume thoroughly blended.
- Seed bed should be well pulverized and loosened to a minimum depth of 3 inches and then raked to have a uniform surface.
- When establishing vegetation from seed, groove or furrow slopes steeper than 3:1 on the contour line before seeding.

Plant Selection, Fertilization and Seeding

- Use only high quality, USDA certified seed.
- Use an appropriate species or species mixture adapted to the local climate, onsite soil conditions and the season as shown below, or consult with the local office of the Natural Resource Conservation Service (NRCS) or Texas AgriLife Extension Service for selection of proper species and application technique in this area.
- Seeding rate should be in accordance with the Tables 2.4, 2.5 and 2.6 as follow in this section or as recommended by the Natural Resources Conservation Service (NRCS) or Texas AgriLife Extension Service.
- Chemical fertilization is not recommended at the time of seeding, because it typically stimulates and is consumed by fast growing weeds that out-compete the slower growing grasses and legumes. If the topsoil has not been amended by compost as discussed above, an 0.5 inch layer of General Use Compost (TxDOT Special Specification 1001) is recommended as a surface treatment to protect the seed and provide slow release nutrients
- Evenly apply seed using a seed drill, cultipacker, terraseeding, or hydroseeder.
- Hydro-seeding should not be used on slopes of 5:1 or steeper unless Bonded Fiber Matrix is used.
- Seeded areas shall be thoroughly watered immediately after planting. Water shall be applied at a rate that moistens the top 6 inches of soil without causing runoff. Provide water daily for the first 14 days after seeding and thereafter as needed to aid in establishment of vegetation.
- Use appropriate mulching techniques (*Section 2.5 Mulching*) where necessary, especially during cold periods of the year. Mulch consisting of chipped site vegetation is discouraged, since the wood content may result in depleting nitrogen from the soil.

Sodding

- Use of sod should be limited to planned landscapes due to the relatively high water use of most types of sod grass.
- When sod is necessary to achieve immediate stabilization, buffalograss (*Buchloe dactyloides*) is recommended. Other types of sod may be used in landscaping when specified by a landscape architect for a commercial property or a homebuyer for a residential lot.
- The sod should be mowed prior to sod cutting so that the height of the grass shall not exceed 3 inches and should not be harvested or planted when its moisture condition is so excessively wet or dry that its survival shall be affected.
- Sod shall have a healthy, virile, system of dense, thickly matted roots throughout a minimum soil thickness of 0.75 inch.
- Sod shall be planted within 3 days after it is excavated.
- In areas subject to direct sunlight, pre-moisten prepared sod bed by watering immediately prior to placing sod.
- Sodded areas shall be thoroughly watered immediately after they are planted.

Temporary Vegetation

The following table lists recommended plant species for the North Central Texas region depending on the season for planting.

Table 2.4 Recommended Grass Mixture for Temporary Erosion Control

Season	*Common Name*	*Pure Live Seed Rate (Lbs/Acre)*
Sep 1 - Nov 30	Tall Fescue Western Wheat Grass Wheat (Red, Winter)	4.5 5.6 34.0
May 1 - Aug 31	Foxtail Millet	34.0
Feb 15 – May 31 Sep 1 – Dec 31	Annual Rye	20.0

Areas receiving temporary seeding and vegetation shall be landscaped, re-seeded or sodded with perennial species to establish final vegetation at the end of construction.

Vegetation for Final Stabilization

Sodding or seeding may be used to establish vegetation for final stabilization of areas disturbed by construction activity. The vegetation must achieve a cover that is 70 percent of the native background vegetative cover to be considered final stabilization. Sod will achieve this coverage quicker than seeding; however, sod is usually more expensive than seeding. Sod is most cost-effective for small areas or areas of concentrated flow or heavy pedestrian traffic where it will be difficult to establish vegetation by seeding.

Grass seed for establishing final stabilization can be sown at the same time as seeding for temporary (annual) vegetation. Drought tolerant native vegetation is recommended rather than exotics as a long-term water conservation measure. Native grasses can be planted as seed or placed as sod. Buffalo 609, for example, is a hybrid grass that is placed as sod. Fertilizers are not normally used to establish native grasses, but mulching is effective in retaining soil moisture for the native plants.

Table 2.5 Recommended Grass Mixture for Final Stabilization of Upland in Rural Areas

County	Planting Date	Clay Soils Species and Pure Live Seed Rate (Lbs/Acre)		Sandy Soils Species and Pure Live Seed Rate (Lbs/Acre)	
Erath Hood Johnson Palo Pinto Parker Somervell Tarrant Wise	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Little Bluestem (Native) Blue Grama (Hachita) Illinois Bundleflower	0.3 2.7 0.9 1.0 0.9 1.0	Green Sprangletop Sand Lovegrass Bermudagrass Weeping Lovegrass (Ermelo) Sand Dropseed Partridge Peal	0.3 0.5 1.8 0.8 0.4 1.0
Collin Dallas Denton Ellis Kaufman Navarro Rockwell	February 1 – May 15	Green Sprangletop Bermudagrass Sideoats Grama (El Reno) Little Bluestem (Native) Buffalograss (Texoka) Illinois Bundleflower	0.3 1.2 2.7 2.0 1.6 1.0	Green Sprangletop Bermudagrass Weeping Lovegrass (Ermelo) Sand Lovegrass Sand Dropseed Partridge Pea	0.3 1.8 0.6 0.6 0.4 1.0
Hunt	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Little Bluestem (Native) Illinois Bundleflower	0.3 3.2 1.8 1.7 1.0	Green Sprangletop Bermudagrass Bahiagrass (Pensacola) Sand Lovegrass Weeping Lovegrass (Ermelo) Partridge Pea	0.3 1.5 6.0 0.6 0.8 1.0

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Table 2.6 Recommended Grass Mixture for Final Stabilization of Upland in Urban Areas

County	Planting Date	Clay Soils Species and Pure Live Seed Rate (Lbs/Acre)		Sandy Soils Species and Pure Live Seed Rate (Lbs/Acre)	
Erath Hood Johnson Palo Pinto Parker Somervell Tarrant Wise	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Buffalograss (Texoka)	0.3 3.6 2.4 1.6	Green Sprangletop Sideoats Grama (El Reno) Bermudagrass Sand Dropseed	0.3 3.6 2.1 0.3
Collin Dallas Denton Ellis Kaufman Navarro Rockwell	February 1 – May 15	Green Sprangletop Sideoats Grama (El Reno) Buffalograss (Texoka) Bermudagrass	0.3 3.6 1.6 2.4	Green Sprangletop Buffalograss (Texoka) Bermudagrass Sand Dropseed	0.3 1.6 3.6 0.4
Hunt	February 1 – May 15	Green Sprangletop Bermudagrass Sideoats Grama (Haskell)	0.3 2.4 4.5	Green Sprangletop Bermudagrass	0.3 5.4

(Source: TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges, Item 164)

Vegetation for final stabilization of channels requires grasses that are tolerant of periodic inundation, such as Bermuda grass, Kentucky bluegrass or a grass-legume mixture.

Additional Considerations

- Conditions for establishing vegetation vary significantly from site to site. Therefore, specifics of the vegetation design should be prepared based on the soil, slopes, drainage patterns, and the purpose of the vegetation at a each site.
- For construction activities that include landscaping in the development plans, the landscape architect should be consulted when specifying vegetation for temporary or final stabilization of disturbed areas.
- Vegetation is easier to establish if equipment and vehicle traffic is managed onsite to minimize soil compaction by traffic in the disturbed area that will be vegetated.
- Establishing a good vegetative cover is dependent on the season of the year. Projects that commence in the fall of the year may not be candidates for using vegetation as an erosion control.
- Where vegetation is used in swales and channels it may be necessary to use sod, rather than seeding, to establish an erosion resistant surface that accommodates rainfall runoff flows.
- Mulch should be used to enhance vegetative growth, in that mulch protects seeds from heat, prevents soil moisture loss, and provides erosion protection until the vegetation is established. Compost mulch has the additional benefit of providing some slow-release nutrients.
- Fertilizers have both beneficial and adverse effects. Fertilizers provide nutrients to the vegetation, but fertilizers are also a source of unwanted nutrients in streams and lakes. In this latter regard, they are a pollutant. The use of native vegetation rather than exotics reduces the need for fertilizers. Organic fertilizers, such as compost mulch, are generally preferred over chemical fertilizers. They provide a slow release of nutrients over a longer period of time and are less likely to cause environmental problems.
- Steep slopes represent a problem for establishing vegetation. Hydraulic mulches are useful for establishing vegetation on slopes. Refer to *Section 2.5 Mulching*.

2.9.4 Design Guidance and Specifications

Additional criteria for the application of vegetation in channels are in *Section 3.6.3 of the iSWM Criteria Manual* and design guidance is in *Section 3.2 of the Hydraulics Technical Manual*.

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Item 202 Landscaping. Additional specifications for the following components of this item are in the Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges (TxDOT 2004):

- Topsoil, Item 160.
- Compost, Item 161.
- Sodding for Erosion Control, Item 162.
- Seeding for Erosion Control, Item 163.
- Fertilization, Item 164.
- Vegetative Watering 165.

2.9.5 Inspection and Maintenance Requirements

Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Include a watering and fertilizing schedule in the iSWM Construction Plan facilitate the establishment of the vegetation. Vegetation for final stabilization must be maintained until the vegetative cover is 70 percent of the native background vegetative cover.

Vegetation should be inspected regularly (at least as often as required by the TPDES Construction General Permit) to ensure that the plant material is established properly and remains healthy. Bare spots shall be reseeded and/or protected from erosion by mulch or other measures. Accumulated sediment

deposited by runoff should be removed to prevent smothering of the vegetation. In addition, determine the source of excess sediment and implement appropriate measures to control the erosion.

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I LANGFORD STUBER,
Print Name

OWNER/DEVELOPER,
Title - Owner/President/Other

of CHV SAN GABRIEL PROPERTY OWNER LP,
Corporation/Partnership/Entity Name

have authorized SANDY BRANTLEY
Print Name of Agent/Engineer

of KIRKMAN ENGINEERING
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

10/10/2023
Date

THE STATE OF Texas §

County of Dallas §

BEFORE ME, the undersigned authority, on this day personally appeared Langford Stuber known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 10th day of October, 2023.

JENNAN MARIE ALAME
Notary Public, State of Texas
Comm. Expires 04-19-2026
Notary ID 131521085

NOTARY PUBLIC

Jennan Alame
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 4-19-2026

Agent Authorization Form
For Required Signature
Edwards Aquifer Protection Program
Relating to 30 TAC Chapter 213
Effective June 1, 1999

I RAJU PADIGALA,
Print Name

OWNER/DEVELOPER,
Title - Owner/President/Other

of AR REDDY SPRING CREEK LLC,
Corporation/Partnership/Entity Name

have authorized SANDY BRANTLEY
Print Name of Agent/Engineer

of KIRKMAN ENGINEERING
Print Name of Firm

to represent and act on the behalf of the above named Corporation, Partnership, or Entity for the purpose of preparing and submitting this plan application to the Texas Commission on Environmental Quality (TCEQ) for the review and approval consideration of regulated activities.

I also understand that:

1. The applicant is responsible for compliance with 30 Texas Administrative Code Chapter 213 and any condition of the TCEQ's approval letter. The TCEQ is authorized to assess administrative penalties of up to $10,000 per day per violation.

2. For those submitting an application who are not the property owner, but who have the right to control and possess the property, additional authorization is required from the owner.

3. Application fees are due and payable at the time the application is submitted. The application fee must be sent to the TCEQ cashier or to the appropriate regional office. The application will not be considered until the correct fee is received by the commission.

4. A notarized copy of the Agent Authorization Form must be provided for the person preparing the application, and this form must accompany the completed application.

5. No person shall commence any regulated activity on the Edwards Aquifer Recharge Zone, Contributing Zone or Transition Zone until the appropriate application for the activity has been filed with and approved by the Executive Director.

SIGNATURE PAGE:

Applicant's Signature

10/11/2023
Date

THE STATE OF Texas §

County of Tarrant §

BEFORE ME, the undersigned authority, on this day personally appeared Raju Padigala known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that (s)he executed same for the purpose and consideration therein expressed.

GIVEN under my hand and seal of office on this 11th day of October, 2023

NOTARY PUBLIC

Haley Buesing
Typed or Printed Name of Notary

MY COMMISSION EXPIRES: 10/09/2024

Application Fee Form

Texas Commission on Environmental Quality

Name of Proposed Regulated Entity: Liberty Hill 15

Regulated Entity Location: Southeast corner of Highway 183 & Larkspur Park Blvd

Name of Customer: CHV San Gabriel Property Owner LP , AR Reddy Spring Creek LLC

Contact Person: Langford Stuber, Raju Padigala Phone: 214-435-7510, 512-761-8025

Customer Reference Number (if issued):CN _____

Regulated Entity Reference Number (if issued):RN _____

Austin Regional Office (3373)

☐ Hays ☐ Travis ☒ Williamson

San Antonio Regional Office (3362)

☐ Bexar ☐ Medina ☐ Uvalde

☐ Comal ☐ Kinney

Application fees must be paid by check, certified check, or money order, payable to the **Texas Commission on Environmental Quality**. Your canceled check will serve as your receipt. **This form must be submitted with your fee payment**. This payment is being submitted to:

☒ Austin Regional Office

☐ Mailed to: TCEQ - Cashier
Revenues Section
Mail Code 214
P.O. Box 13088
Austin, TX 78711-3088

☐ San Antonio Regional Office

☐ Overnight Delivery to: TCEQ - Cashier
12100 Park 35 Circle
Building A, 3rd Floor
Austin, TX 78753
(512)239-0357

Site Location (Check All That Apply):

☐ Recharge Zone ☒ Contributing Zone ☐ Transition Zone

Type of Plan	***Size***	***Fee Due***
Water Pollution Abatement Plan, Contributing Zone Plan: One Single Family Residential Dwelling	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Multiple Single Family Residential and Parks	Acres	$
Water Pollution Abatement Plan, Contributing Zone Plan: Non-residential	36 Acres	$6,500
Sewage Collection System	L.F.	$
Lift Stations without sewer lines	Acres	$
Underground or Aboveground Storage Tank Facility	Tanks	$
Piping System(s)(only)	Each	$
Exception	Each	$
Extension of Time	Each	$

Signature: Prashantika Gautam Date: 10/9/23

Application Fee Schedule

Texas Commission on Environmental Quality
Edwards Aquifer Protection Program 30 TAC Chapter 213 (effective 05/01/2008)

Water Pollution Abatement Plans and Modifications

Contributing Zone Plans and Modifications

Project	*Project Area in Acres*	*Fee*
One Single Family Residential Dwelling	< 5	$650
Multiple Single Family Residential and Parks	< 5 5 < 10 10 < 40 40 < 100 100 < 500 ≥ 500	$1,500 $3,000 $4,000 $6,500 $8,000 $10,000
Non-residential (Commercial, industrial, institutional, multi-family residential, schools, and other sites where regulated activities will occur)	< 1 1 < 5 5 < 10 10 < 40 40 < 100 ≥ 100	$3,000 $4,000 $5,000 $6,500 $8,000 $10,000

Organized Sewage Collection Systems and Modifications

Project	*Cost per Linear Foot*	*Minimum Fee-Maximum Fee*
Sewage Collection Systems	$0.50	$650 - $6,500

Underground and Aboveground Storage Tank System Facility Plans and Modifications

Project	*Cost per Tank or Piping System*	*Minimum Fee-Maximum Fee*
Underground and Aboveground Storage Tank Facility	$650	$650 - $6,500

Exception Requests

Project	*Fee*
Exception Request	$500

Extension of Time Requests

Project	*Fee*
Extension of Time Request	$150

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN		**RN**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* *If new Customer, enter previous Customer below:*

CHV San Gabriel Property Owner LP

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
0804464006	32083563794	88-1377910	

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☑ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:							
	4849 Greenville Ave, Suite 1545						
	City	Dallas	**State**	Texas	**ZIP**	75206	**ZIP + 4**

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	langford@chalkhillventures.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(214)-435-7510		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Liberty Hill 15

23. Street Address of the Regulated Entity: ***(No PO Boxes)***							
	City		**State**		**ZIP**		**ZIP + 4**
24. County	Williamson						

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	Southeast corner of Highway 183 & Larkspur Park Blvd				
26. Nearest City			**State**		**Nearest ZIP Code**
Liberty Hill			TX		78641

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	37	38	97	51	48

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

SPE entity that owns a parcel of land for future development.

34. Mailing Address:	4849 Greenville Ave, Suite 1545						
	City	Dallas	**State**	Texas	**ZIP**	75206	**ZIP + 4**
35. E-Mail Address:	langford@chalkhillventures.com						

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(214)-435-7510		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Sandy Brantley	**41. Title:**	Civil Engineer

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(512)428- 8586		( ) -	sandy.brantley@trustke.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	CHV San Gabriel Property Owner LP	**Job Title:**	Authorized Signatory
Name *(In Print):*	Langford Stuber	**Phone:**	(214-435-7510
Signature:	Langford Stuber	**Date:**	10/10/2023

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN		**RN**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* — *If new Customer, enter previous Customer below:*

AR Reddy Spring Creek LLC

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
802632279	32062673978	81-5097353	

11. Type of Customer: ☐ Corporation ☐ Individual Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:							
	6253 Corvara Court						
City	Frisco	**State**	Texas	**ZIP**	75035	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	raj@theprimedeveloper.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(512)-761-8025		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

Liberty Hill 15

23. Street Address of the Regulated Entity: ***(No PO Boxes)***							
	City		**State**		**ZIP**		**ZIP + 4**
24. County	Williamson						

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	Southeast corner of Highway 183 & Larkspur Park Blvd				
26. Nearest City			**State**		**Nearest ZIP Code**
Liberty Hill			TX		78641

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:			**28. Longitude (W) In Decimal:**		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	37	38	97	51	48

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Commercial Land Development

34. Mailing Address:	6253 Corvara Court						
	City	Frisco	**State**	Texas	**ZIP**	75035	**ZIP + 4**
35. E-Mail Address:	raj@theprimedeveloper.com						

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
(512)-761-8025		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☒ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☐ Sludge	☒ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Sandy Brantley	41. Title:	Civil Engineer

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(512)428- 8586		( ) -	sandy.brantley@trustke.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	AR Reddy Spring Creek	Job Title:	Owner
Name *(In Print)*:	Raju Padigala	Phone:	(937)286-7929
Signature:		Date:	10/11/2022