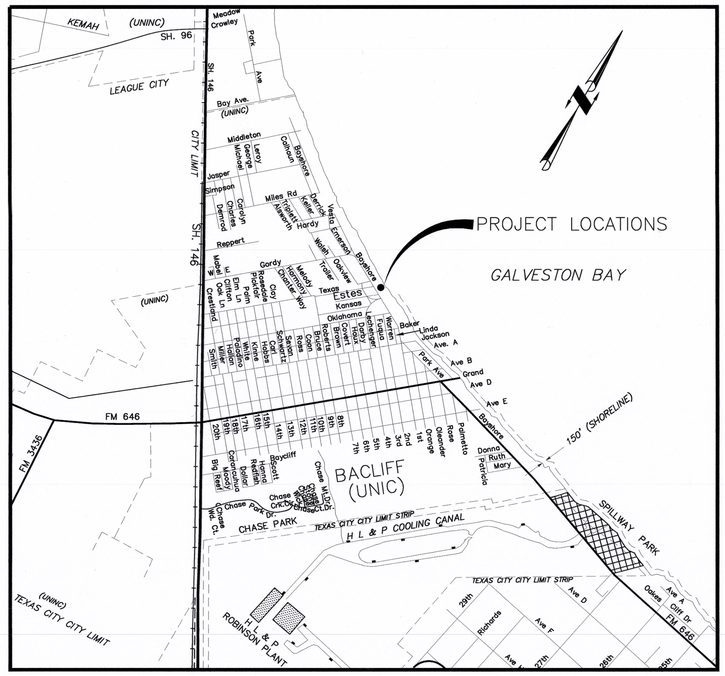
GALVESTON COUNTY

GALVESTON COUNTY ENGINEERING DEPARTMENT

ESTES PARK CULVERTS (C1)
BACLIFF, TEXAS



OFFICIALS

MARK HENRY	COUNTY JUDGE
DARRELL APFFEL	COMMISSIONER PRECINCT NO. 1
JOE GIUSTI	COMMISSIONER PRECINCT NO. 2
STEPHEN HOLMES	COMMISSIONER PRECINCT NO. 3
KEN CLARK	COMMISSIONER PRECINCT NO. 4

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APPROVED BY:

MICHAEL SHANNON, PE
COUNTY ENGINEER

DATE 10/1/2020

STATE OF TEXAS
MICHAEL G. SHANNON
77480
LICENSED
PROFESSIONAL ENGINEER

GENERAL NOTES

1. All construction materials and workmanship shall be in accordance with these drawings and TXDOT 2014 Standard Specifications for Construction and Maintennance of Highways, Streets, and Bridges.

2. The contractor shall carefully examine the drawings and specifications, visit the site of this work, and check the proposed locations of all new work. The contractor shall inform himself, in detail, as to all existing conditions, limitations, available clearances, and shall thoroughly check all facilities, which are to be removed and/or relocated.

3. Where a material or product is referred to on the drawings by a manufacturer's brand or trade name, it is for the purpose of establishing a standard or quality. Similar materials or products of equal quality (meeting design requirements) from other manufacturer's will be given due consideration provided they are submitted to and approved by the Engineer as per the provisions of the general conditions.

4. An effort to determine all the pipelines and utilities which may impact the project has been made. All known pipelines and utilities have been approximately located and shown on the plans. The Contractor shall notify all utility and pipeline owners before beginning the work. Additional unknown utilities and pipelines may be found. Adjustment of these utilities or pipelines shall be done by others at no expense to the Contractor. However, the Contractor shall cooperate and coordinate his work with the adjustment. The Contractor will anticipate this in making his bid. The Contractor will not be allowed claims for damages or delays for these adjustments should they be necessary. However, additional time will be considered for the contract period. This action, however, shall in no way be interpreted as relieving the Contractor of his responsibilities under the terms of the contract as set out in the plans and specifications.

5. The Contractor shall repair any damage to the County's or Bacliff MUD's facilities caused by his operations at the Contractor's expense and shall restore facilities to service in a timely manner.
   Contact numbers in case of conflict or damage to facilities:
   Bacliff MUD: 281-339-1634
   Nancy Baher, PE (Galveston County): 409-770-5556

6. The drawings and specifications are correlative and have equal authority and priority. Should they disagree in themselves, or with each other, base the bids on the most expensive combination of quality and quantity of the work indicated. The Engineer will clarify the project requirements in the event of the above mentioned disagreements.

7. The Contractor shall be responsible for obtaining and furnishing all permits and licenses, City, County, State or Federal as are required for the performance of this contract.

8. All items of work required under this contract not specifically called for in the proposal as pay items shall be considered incidental and no separate payment shall be made for same.

9. The Contractor shall adequately protect existing structures, utilities, tree, shrubs, landscaping and other objects. All costs for repair and/or replacement of damage due to the Contractor's operations shall be paid for by the Contractor at no additional cost to the County.

10. All existing culverts to be removed shall become the property of the Contractor and shall be properly disposed of off-site.

11. All removed, demolished, obliterated, excess and waste materials shall become the property of the Contractor and shall be properly disposed of off-site. Handling, hauling and disposal shall be considered subsidiary to the various bid items and no separate payment will be made for same.

12. At structure locations, ditch grades and channel bottom widths shall be transitioned as directed by the Engineer

13. Dewatering, if necessary, shall be considered incidental to the various bid items and no separate payment shall be made for same.

14. All portions of existing pavement that are to remain shall be protected by the Contractor. Removal of any pavement that is not shown to be removed shall be replaced by the Contractor at no additional cost to the County.

15. No excavation shall be left open overnight. All excavation which cannot be backfilled overnight for the installation of manholes, junction boxes, water, storm and sewer lines, and other utilities shall be covered with steel sheeting when in paved areas. In other areas steel sheeting, wood planking or material which is approved by the County may be used. The excavation area shall be protected with traffic barricades equipped with flashing yellow lights. The excavation area must be completely cordoned off with plastic construction fencing material. The excavation area must be adequately protected and made safe.

16. Where any street or section of a street is closed, the contractor shall furnish and maintain adequate barricades, warning and directing signs, red flags and lights and/or flagmam at the end of each street and at all intersections along the street within the limits of the work area. All expenses incurred for the work shall be paid for by the Contractor. All warning signs and barricades shall conform to the Texas Manual of Uniform Traffic Control Devices-latest edition.

17. The Contractor shall maintain adequate drainage at all times. The contractor shall be responsible for all storm water control, erosion control, pumping and dewatering necessary for the construction of this project. This work shall be considered incidental, and not a seperate pay item.

18. Water for construction shall be provided by the contractor. (no seperate pay item) The Contractor may not use residents' water.

19. The Contractor shall supply as-built markup plans to the County at the end of construction.

JUNCTION BOX GENERAL NOTES

1. Measurement for payment for this item "Junction Box" will be lump sum. This price shall be full compensation for all structural excavation, temporary shoring, form work, concrete, reinforcing steel, compacted backfill, waterstops other accessories, and all labor, tools, materials, equipement and incidentals necessary for a complete concrete structure.

2. Complete shop drawings for the structural work shall be submitted to the Engineer for review prior to commencement of construction, in accordance with the specifications. A period of at least 10 working days shall be provided for this review. Review of shop drawings by the Engineer does not relieve the Contractor of full responsibility for correct fabrication and construction of the work.

3. Any deviation from, addition to, substitution for, or modification to the structure or any part of the structure shown on these drawings shall be submitted in writing to the Engineer for review. Shop drawings that are submitted for review do not constitute "in-writing" unless it is clearly noted that specific changes are being suggested.

4. The Contractor shall verify and be responsible for all dimensions and conditions at the site and shall notify the Engineer of any discrepancies between the actual conditions and information shown on the drawings before proceeding with the work.

5. The drawings and specifications represent the finished structure. They do not indicate the methods of construction unless stated or noted. The contractor shall provide all measures necessary to protect the workmen and other persons during construction.

6. The Contractor shall provide temporary erection bracing and shoring of all structual work as required for stability of the structure during all phases of construction. The Contractor shall immediatly notify the Engineer of any condition which, in his opinion, might endanger the stability of the structure or cause distress in the structure.

7. The minimum thickness of the top slab of the junction box shall be 8 inches with reinforcing as shown on the plans.

CAST IN PLACE REINFORCED CONCRETE:

1. All concrete work shall be in accordance with the most recent edition of ACI 318 building code requirements for reinforced concrete.

2. Mild steel reinforcing bars shall conform to ASTM A-615. No. 3 bars shall be grade 40, larger bars shall be grade 60.

3. Mild steel reinforcement and accessories shall be detailed and fabricated in accordance with ACISP-66.

4. Portland cement shall be a single brand conforming to ASTM C-150, Type 1, unless otherwise approved.

5. Normal weight aggregates shall conform to ASTM C-33. All concrete shall use normal weight aggregates, unless noted otherwise.

6. All additives for air entrainment, water reduction, and set control shall be used in accordance with the manufacturer's directions. The use of calcium chloride is prohibited.

7. Mixes shall be designed to provide concrete with a compressive strenght of 4000 psi (class S) at 28 days.

8. The maximum nominal size of coarse aggregate shall be 1 inch.

9. Concrete slumps shall be as follows:
   Sloping surfaces.....3" max
   Concrete containing super plasticizer.....8" max
   All other concrete.....4" max

10. Mild steel reinforcement shall be placed and secured in accordance with CRSI recommended practice for placing reinforcing bars.

11. Reinforcing bars No. 11 and smaller shall be contact lap spliced 40 bar diameter, unless shown otherwise. Bars larger than No. 11 shall be mechanically spliced with approved devices.

12. Welding of mild steel reinforcement shall conform to the American Welding Society "Structural Welding Code-Reinforcing Steel," AWS D-1.4.

13. The Engineer shall be notified after the mild steel reinforcement and embeds are positioned prior to each concrete placement. No concrete shall be placed until these items are checked and approved.

14. Concrete protection for reinforcement shall be as follows:
    (unless noted otherwise on the drawings)
    A. Top Slab.....2 inches top and sides 1 1/2 inches bottom
    B. Base Slab.....2 inches top 3 inches bottom
    C. Walls.....2 inches sides

15. The invert chanel shall be shaped with 2,500 PSI sand-cement mortar with a min 1" to 12" slope.

16. Use non-shrink grout for water-tight pipe conections at junction box.

NO.	REVISION	BY	DATE

DRAWN BY: L. BUTLER
DESIGNED BY: L. BUTLER
CHECKED BY: MICHAEL SHANNON, P.E.
APPROVED BY: MICHAEL SHANNON, P.E.
SCALE: N/A
DATE: SEPTEMBER 2020

STATE OF TEXAS
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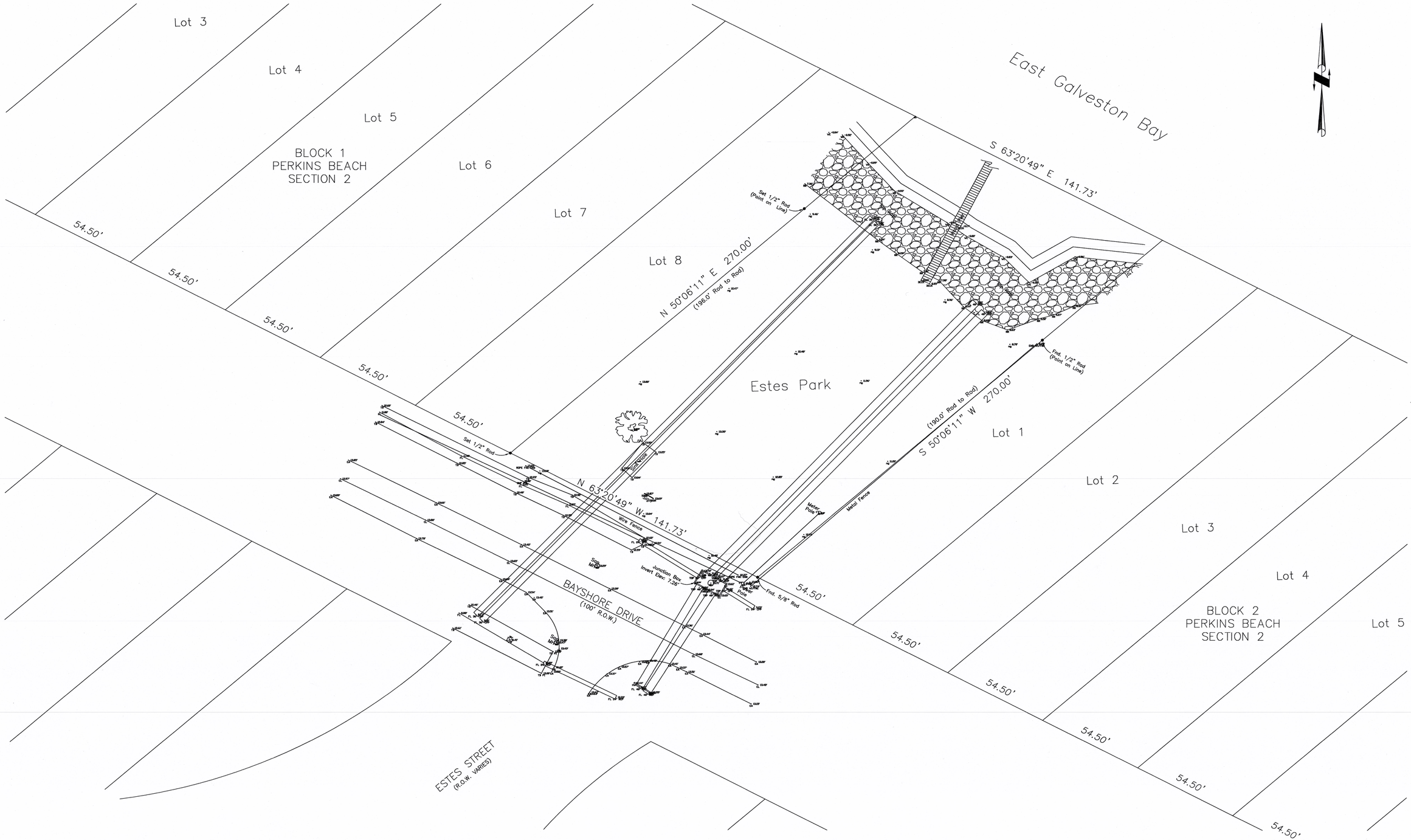
71459
REGISTERED
PROFESSIONAL ENGINEER
10/1/2020

GALVESTON COUNTY
ENGINEERING DEPARTMENT

ESTES PARK CULVERTS (C1)

GENERAL NOTES

SHEET 2 OF 8



DRAWN BY:	LISA BUTLER
DESIGNED BY:	LISA BUTLER
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APPROVED BY:	MICHAEL SHANNON, P.E.
SCALE:	SHOWN
DATE:	SEPTEMBER 2020

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10/1/2020

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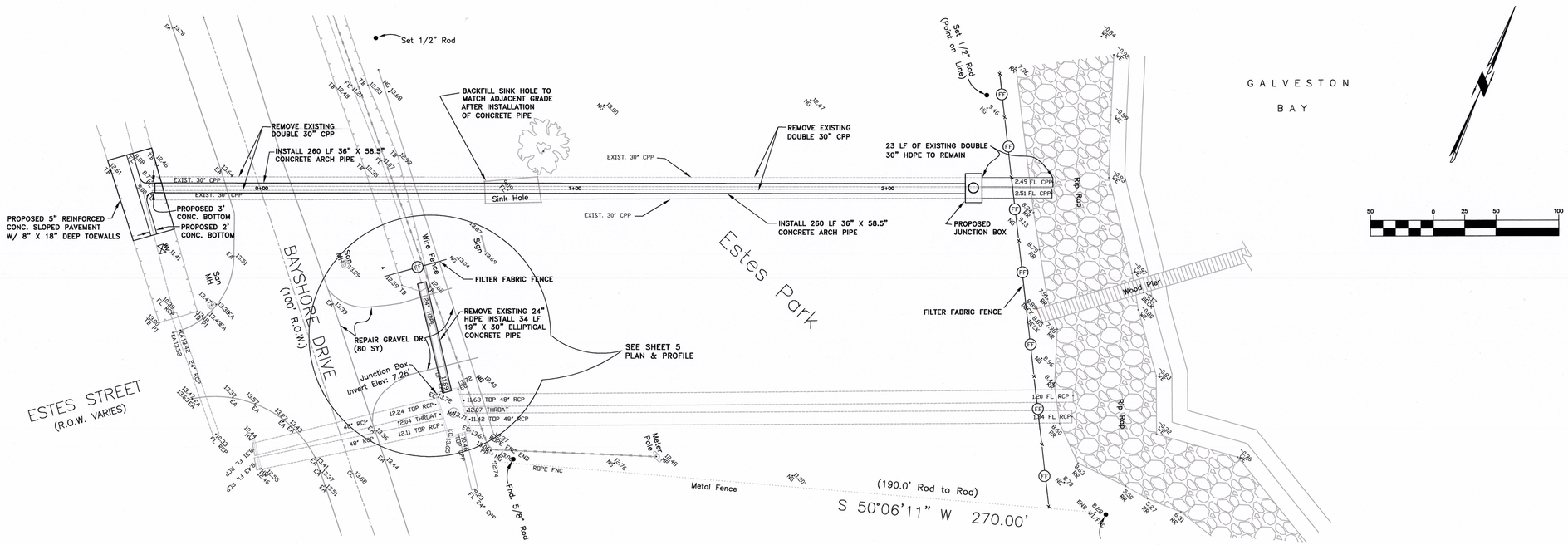
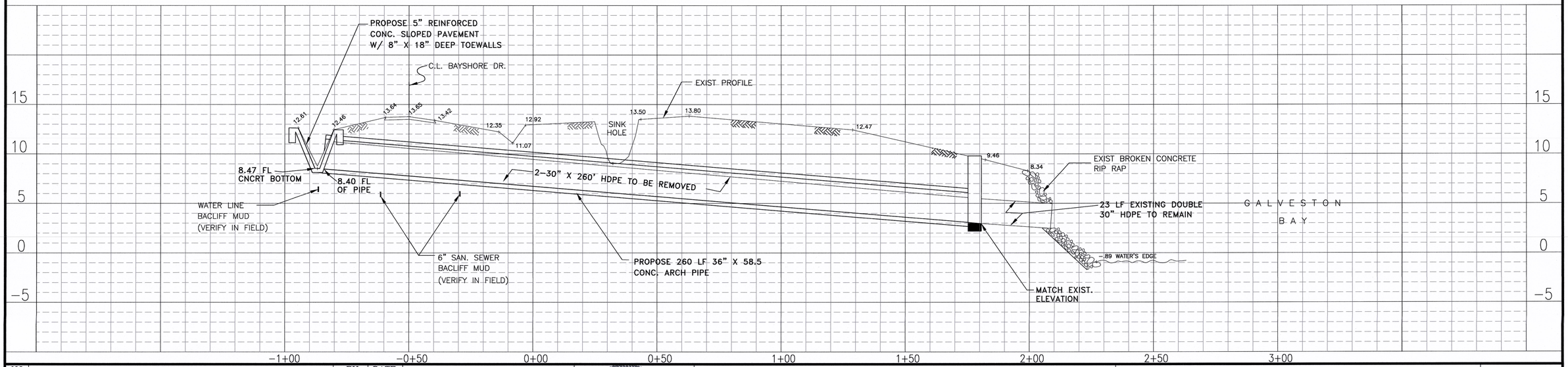
ENGINEERING DEPARTMENT

ESTES PARK CULVERTS (C1)

SURVEY

SHEET 3 OF 8





NO.	REVISION	BY	DATE

DRAWN BY: LISA BUTLER
DESIGNED BY: LISA BUTLER
CHECKED BY: MICHAEL SHANNON, P.E.
APPROVED BY: MICHAEL SHANNON, P.E.
SCALE: HOR: 1" = 20' VERT: 1" = 5'
DATE: SEPTEMBER, 2020

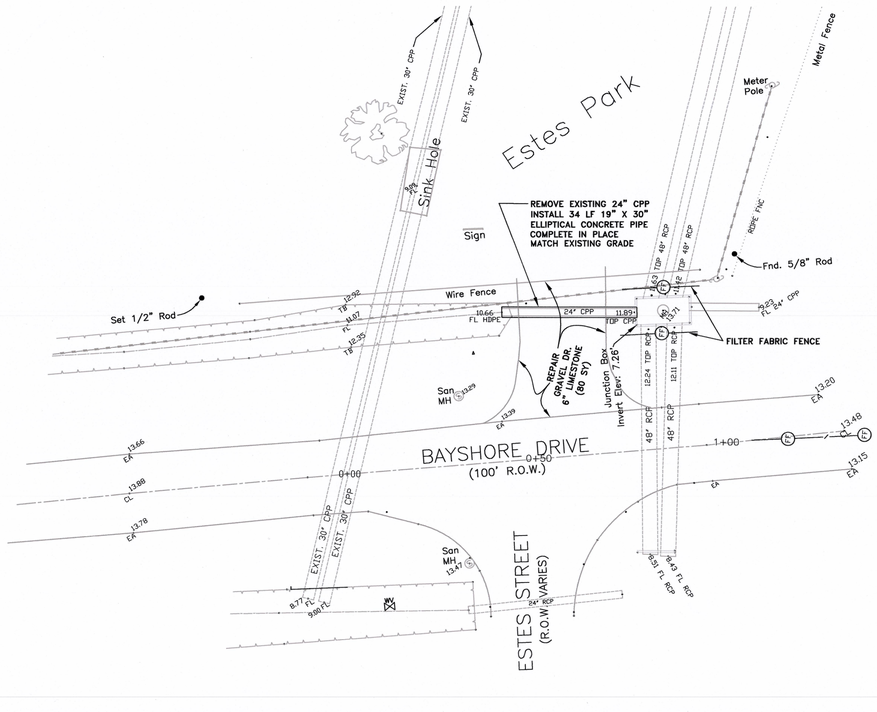
STATE OF TEXAS — MICHAEL C. SHANNON — 71460 — REGISTERED PROFESSIONAL ENGINEER
10/1/2020

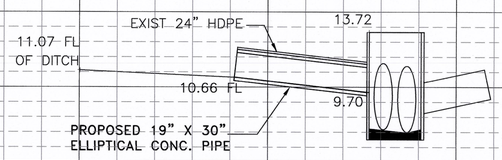
GALVESTON COUNTY
ENGINEERING DEPARTMENT

ESTES PARK CULVERTS (C1)

PLAN AND PROFILE

SHEET 4 OF 8





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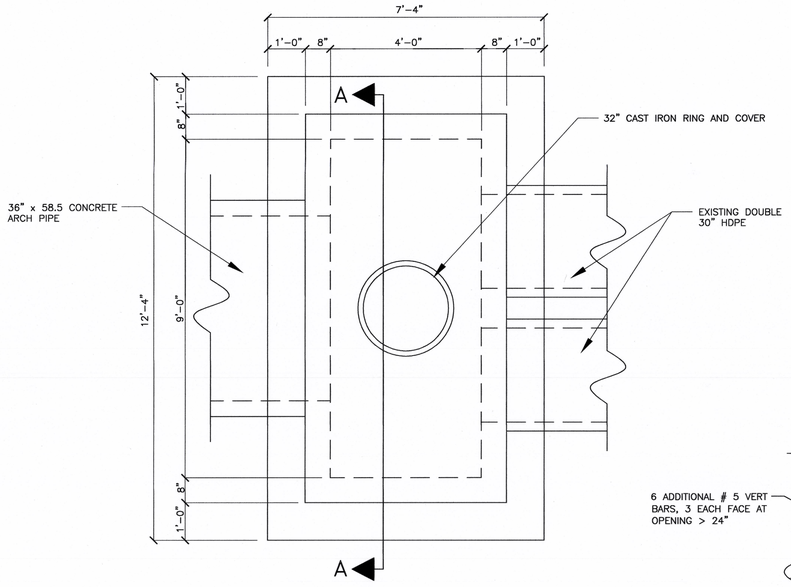
ESTES PARK CULVERTS (C1)

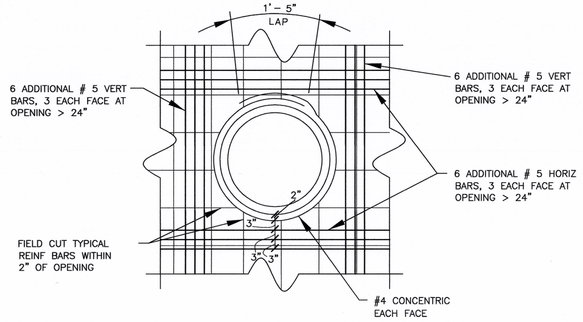
PLAN AND PROFILE

SHEET 5 OF 8



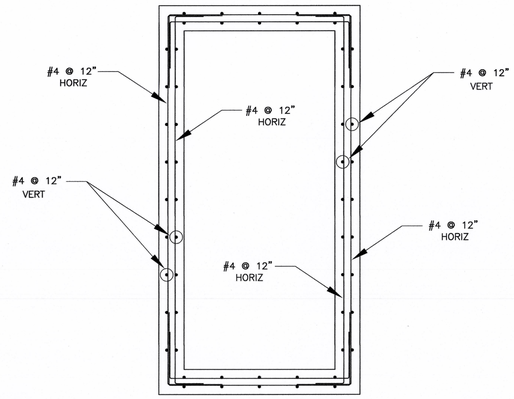
JUNCTION BOX PLAN VIEW

SCALE 1/2" = 1'



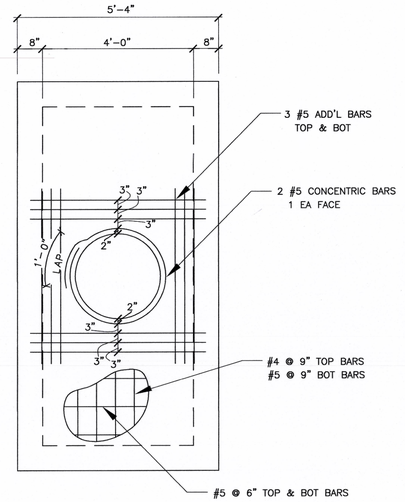
TYP PIPE TO JUNCTION BOX

SCALE 1/2" = 1'



SECTION B – B

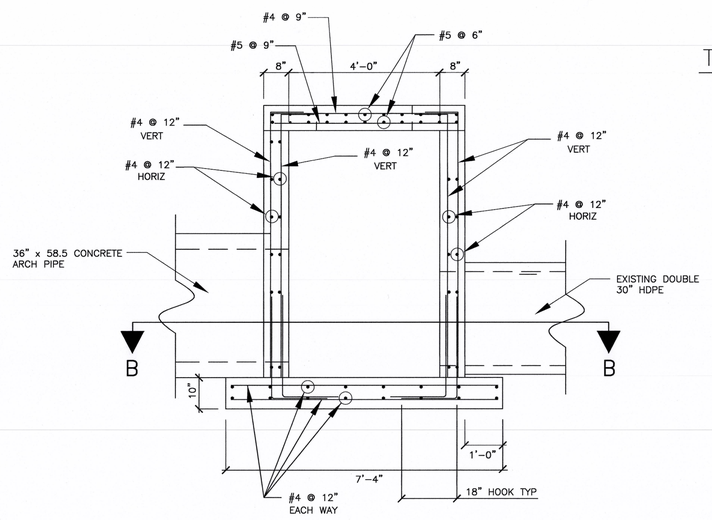
SCALE 1/2" = 1'



TOP SLAB PLAIN VIEW

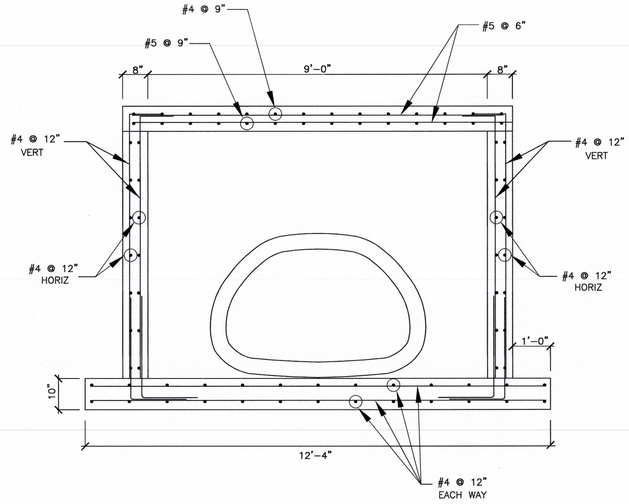
SCALE 1/2" = 1'

NOTE: FIELD CUT TYPICAL REINFORCING BARS TO WITHIN 2" OF MANHOLE RISER OPENING



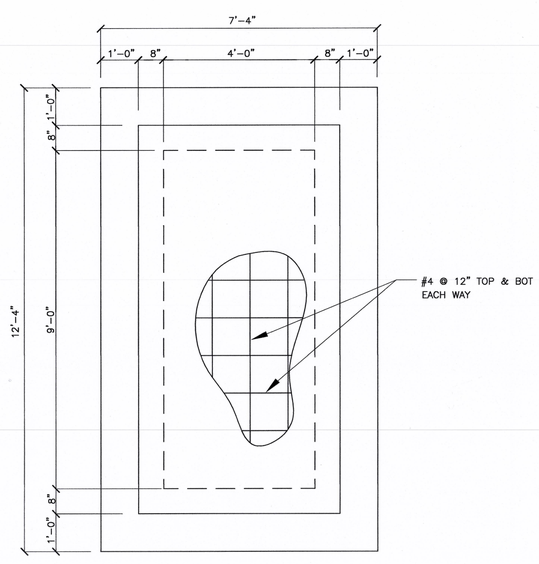
JUNCTION BOX PROFILE VIEW

SCALE 1/2" = 1'



SECTION A–A

SCALE 1/2" = 1'



BOTTOM SLAB PLAN VIEW

SCALE 1/2" = 1'

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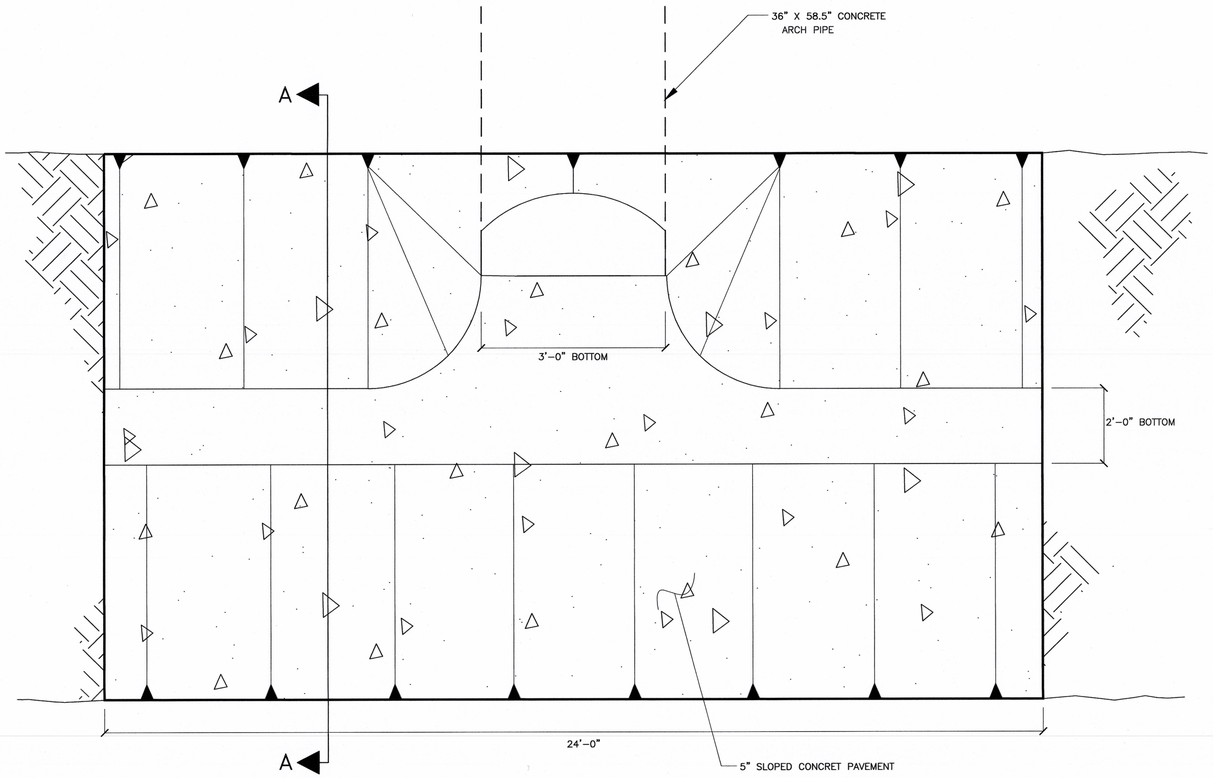
ESTES PARK CULVERTS (C1)

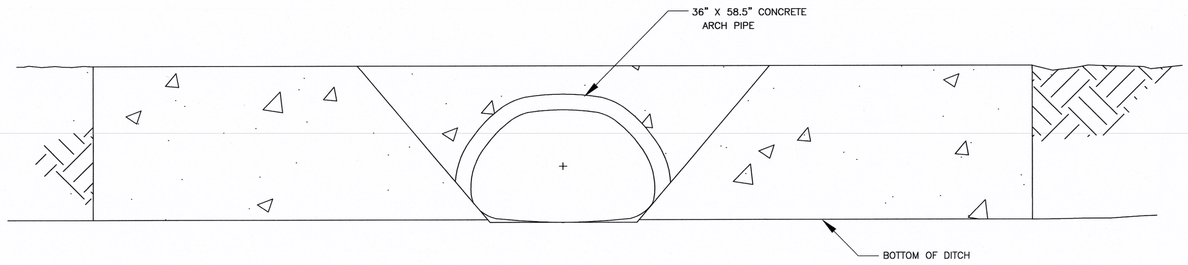
JUNCTION BOX DETAILS

SHEET 6 OF 8



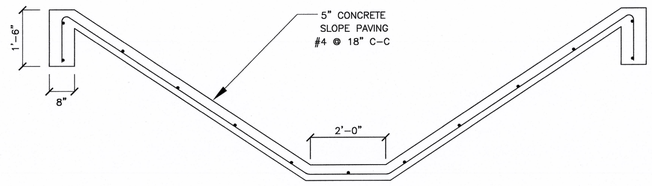
SLOPE PAVING PLAN VIEW

SCALE 1/2" = 1'



SLOPE PAVING PROFILE VIEW

SCALE 1/2" = 1'



SECTION A-A

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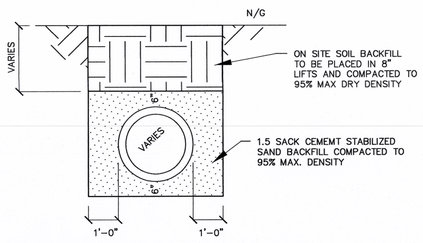
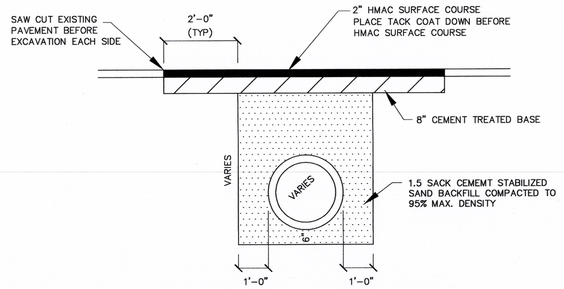


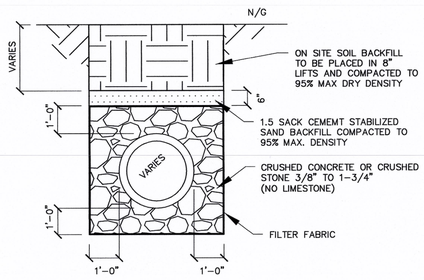
BEDDING AND BACKFILL DETAIL

N.T.S.



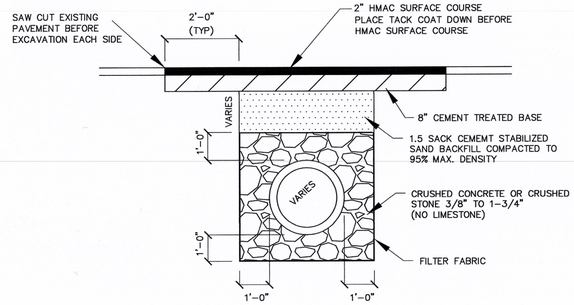
BEDDING AND BACKFILL DETAIL
UNDER PAVEMENT

N.T.S.



BEDDING AND BACKFILL DETAIL
WITH WET TRENCH

N.T.S.



BEDDING AND BACKFILL DETAIL
UNDER PAVEMENT WITH WET TRENCH

N.T.S.

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ESTES PARK CULVERTS (C1)

SLOPE PAVEMENT DETAILS / BEDDING DETAILS

SHEET 7 OF 8

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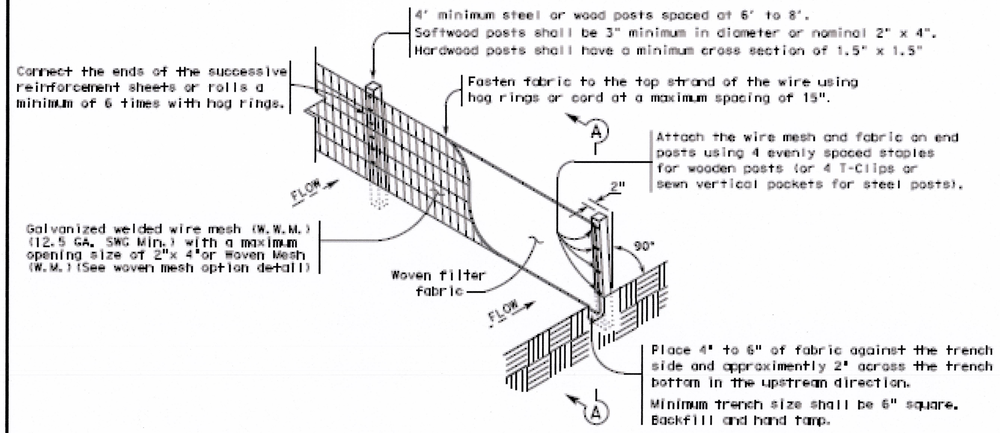
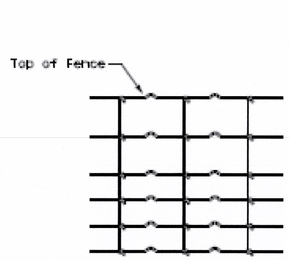
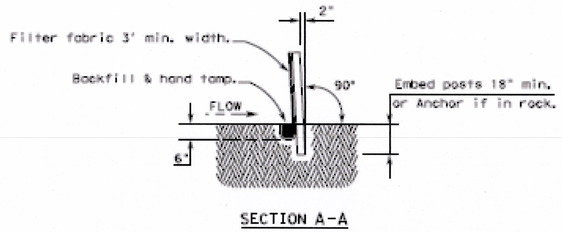


TEMPORARY SEDIMENT CONTROL FENCE

SCF





SECTION A-A

HINGE JOINT KNOT WOVEN MESH (OPTION) DETAIL

Galvanized hinge joint knot woven mesh (12.5 GA.SWG Min.) requires a minimum of five horizontal wires spaced at a maximum of 12 inches apart and all vertical wires spaced at a maximum of 12 inches apart.

SEDIMENT CONTROL FENCE USAGE GUIDELINES

A sediment control fence may be constructed near the downstream perimeter of a disturbed area along a contour to intercept sediment from overland runoff. A 2 year storm frequency may be used to calculate the flow rate to be filtered.

Sediment control fence should be sized to filter a maximum flow through rate of 100 GPM/FT^2. Sediment control fence is not recommended to control erosion from a drainage area larger than 2 acres.

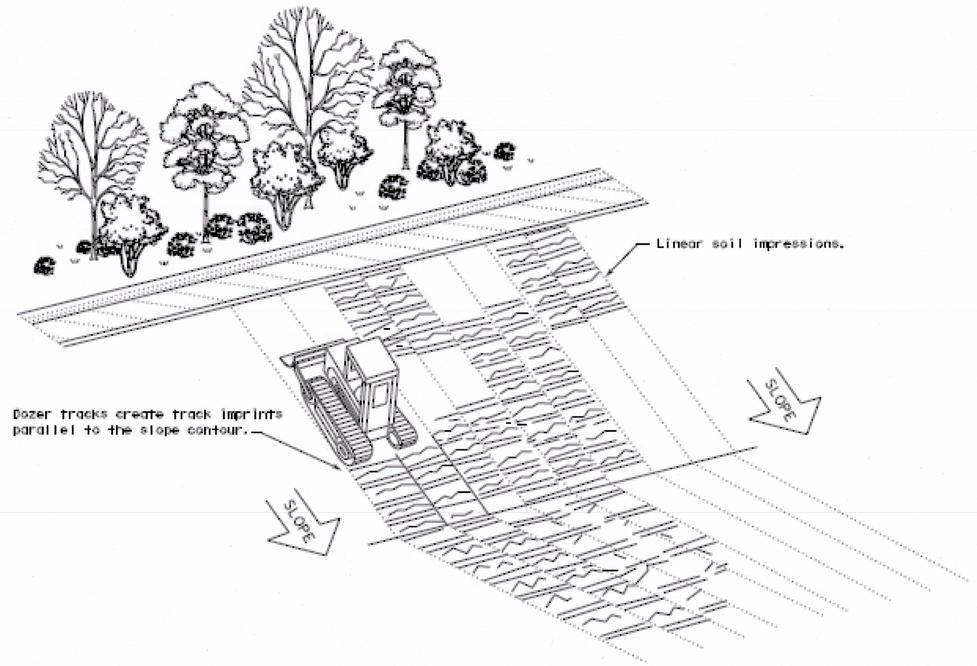
LEGEND

Sediment Control Fence

SCF

GENERAL NOTES

1. Vertical tracking is required on projects where soil distributing activities have occurred unless otherwise approved.
2. Perform vertical tracking on slopes to temporarily stabilize soil.
3. Provide equipment with a track undercarriage capable of producing linear soil impressions measuring a minimum of 12" in length by 2" to 4" in width by 1/2" to 2" in depth.
4. Do not exceed 12" between track impressions.
5. Install continous linear track impressions where the minimum 12" length impressions are perpendicular to the slope or direction of water flow.



VERTICAL TRACKING

Texas Department of Transportation | Design Division Standard

TEMPORARY EROSION, SEDIMENT AND WATER POLLUTION CONTROL MEASURES

FENCE & VERTICAL TRACKING

EC(1)-16

FILE: ec116	DN: TxDOT	CK: KM	DW: VP	CK: LS
© TxDOT JULY 2016	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE
FILE

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DESIGNED BY: LISA BUTLER
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ESTES PARK CULVERTS (C1)

SWPPP – FILTER FABRIC FENCE DETAILS

SHEET 8
OF 8