

**Part III**  
**Attachment III-C**  
**Appendix III-C.2**

**FACILITY SURFACE WATER DRAINAGE DRAWINGS**

**Pescadito Environmental Resource Center**  
**MSW No. 2374**  
**Webb County, Texas**

**PESCADITO**  
**ENVIRONMENTAL RESOURCE CENTER**

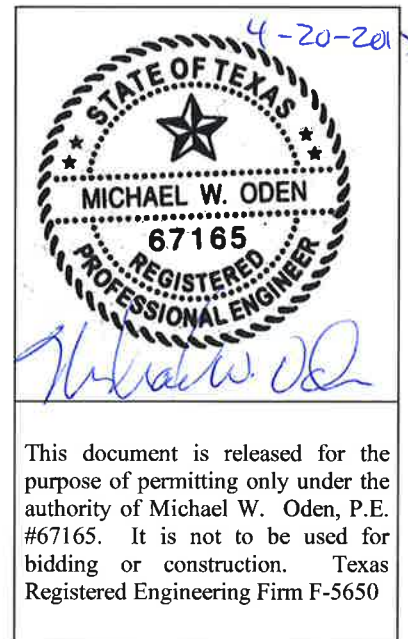
**Initial Submittal March 2015**  
**Supplement April 2015**

**Prepared for:**  
**Rancho Viejo Waste Management, LLC**  
**1116 Calle del Norte**  
**Laredo, TX 78041**

**Prepared by:**  
**CB&I Environmental and**  
**Infrastructure, Inc.**

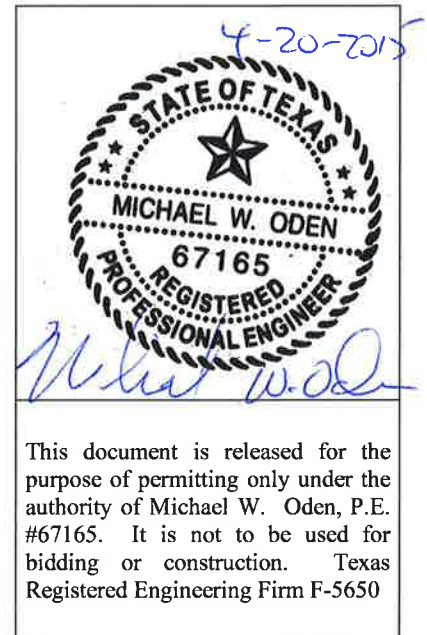


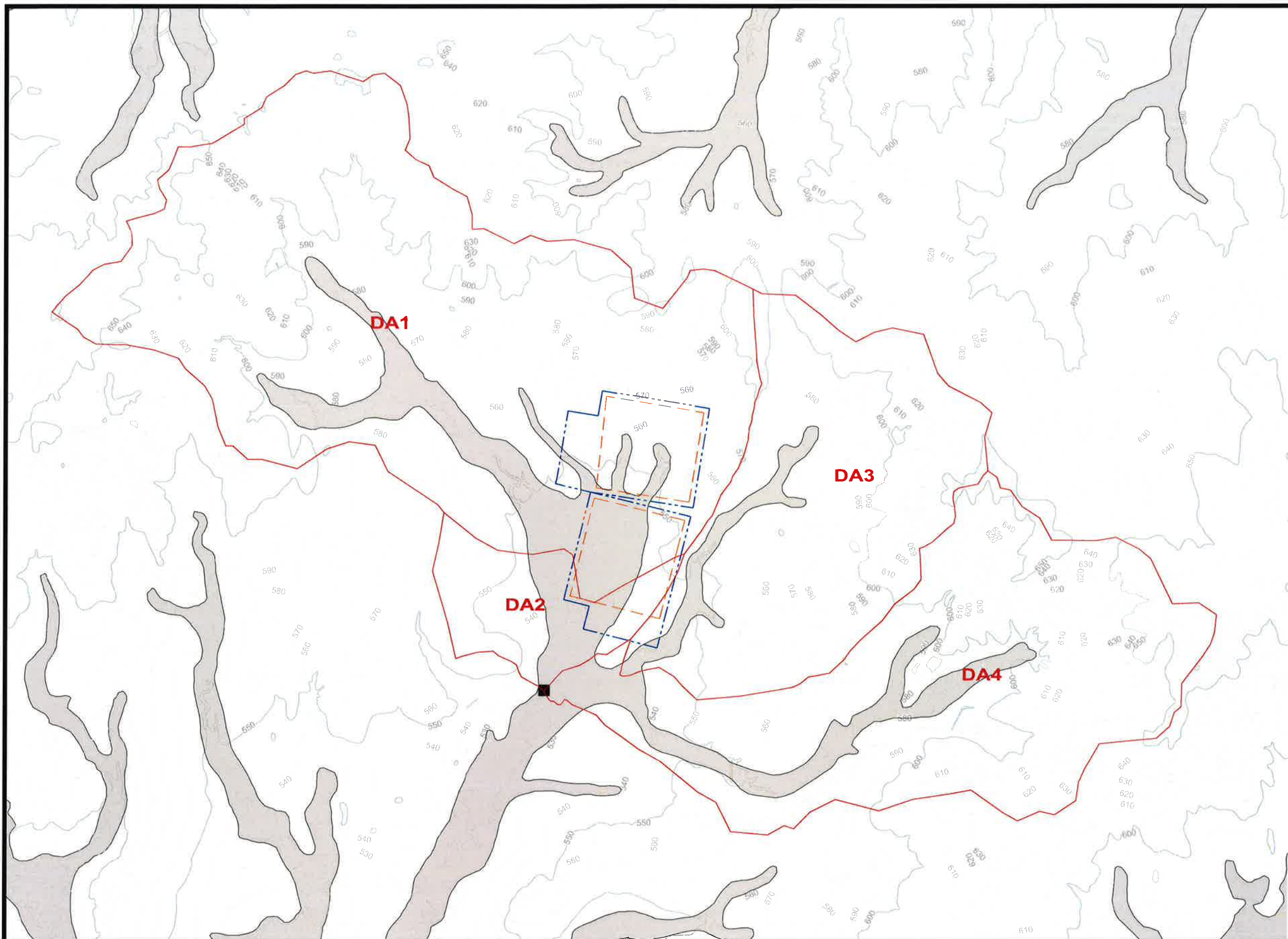
**12005 Ford Rd, Suite 600**  
**Dallas, TX 75234**



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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PRE-DEVELOPMENT SUBCATCHMENT BOUNDARIES
- JUNCTION 1 (SEE NOTE 5)
- 100-YEAR FLOODPLAIN (PRE-CLOMR)

**NOTES**

1. CONTOURS ADAPTED FROM TEXAS NATURAL RESOURCE INFORMATION SYSTEM "TEXAS ELEVATION FRAMEWORK (HYPSOGRAPHY)" QUADRANGLES.
2. BOUNDARY AND IMPROVEMENT SURVEY DEVELOPED BY MEJIA ENGINEERING COMPANY ON AUGUST 15, 2011 AND JUNE 9, 2014.
3. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
4. THE NEED FOR FLEXIBILITY TO ACCOMMODATE ADJUSTMENTS AND MODIFICATIONS IS ANTICIPATED CONSIDERING THE SIZE, COMPLEXITY, AND LIFE OF THE PROJECT.
5. JUNCTION 1 REPRESENTS THE MOST DOWNSTREAM ELEMENT WITHIN THE STORMWATER MODELS AND IS THE MAIN POINT OF COMPARISON BETWEEN MODELS.
6. "DRAINAGE AREAS" (DA) ARE TAKEN FROM THE CONDITIONAL LETTER OF MAP REVISION, PREPARED BY CB&I ENVIRONMENTAL AND INFRASTRUCTURE, INC. APPROVED NOVEMBER 21, 2014.

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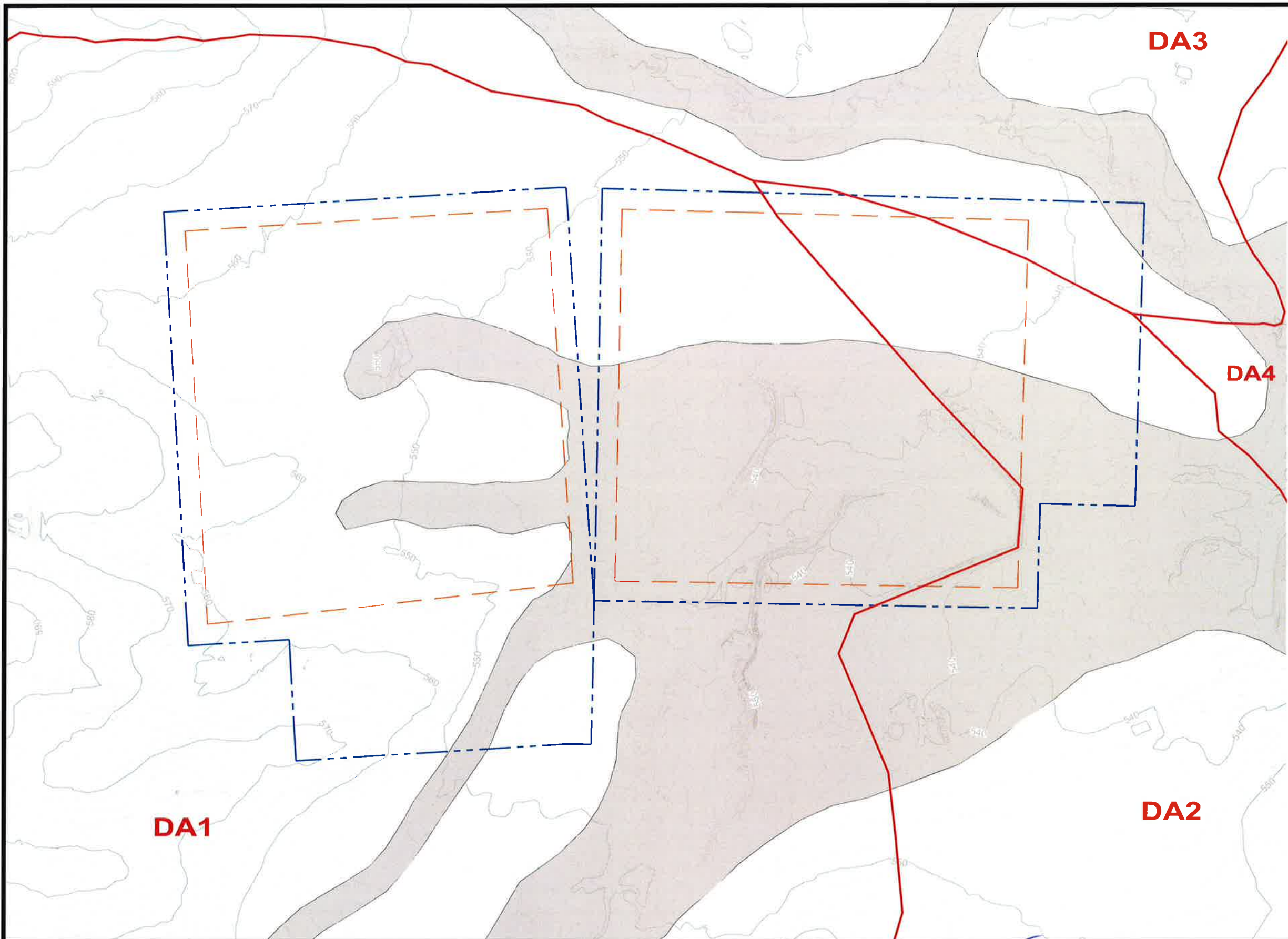


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WEBB COUNTY, TEXAS  
MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
PRE-DEVELOPMENT CONDITIONS - REGIONAL OVERVIEW**

PROJ. NO.:	148866	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	MTE		<b>C.2-1</b>
CHECKED BY:	RDS		1 OF 13 SHEETS
APPROVED BY:	MWO		



**LEGEND**

- - - PERMIT BOUNDARY
- - - WASTE UNIT BOUNDARY
- PRE-DEVELOPMENT SUBCATCHMENT BOUNDARIES
- 100-YEAR FLOODPLAIN (PRE-CLOMR)

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010.
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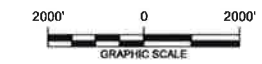
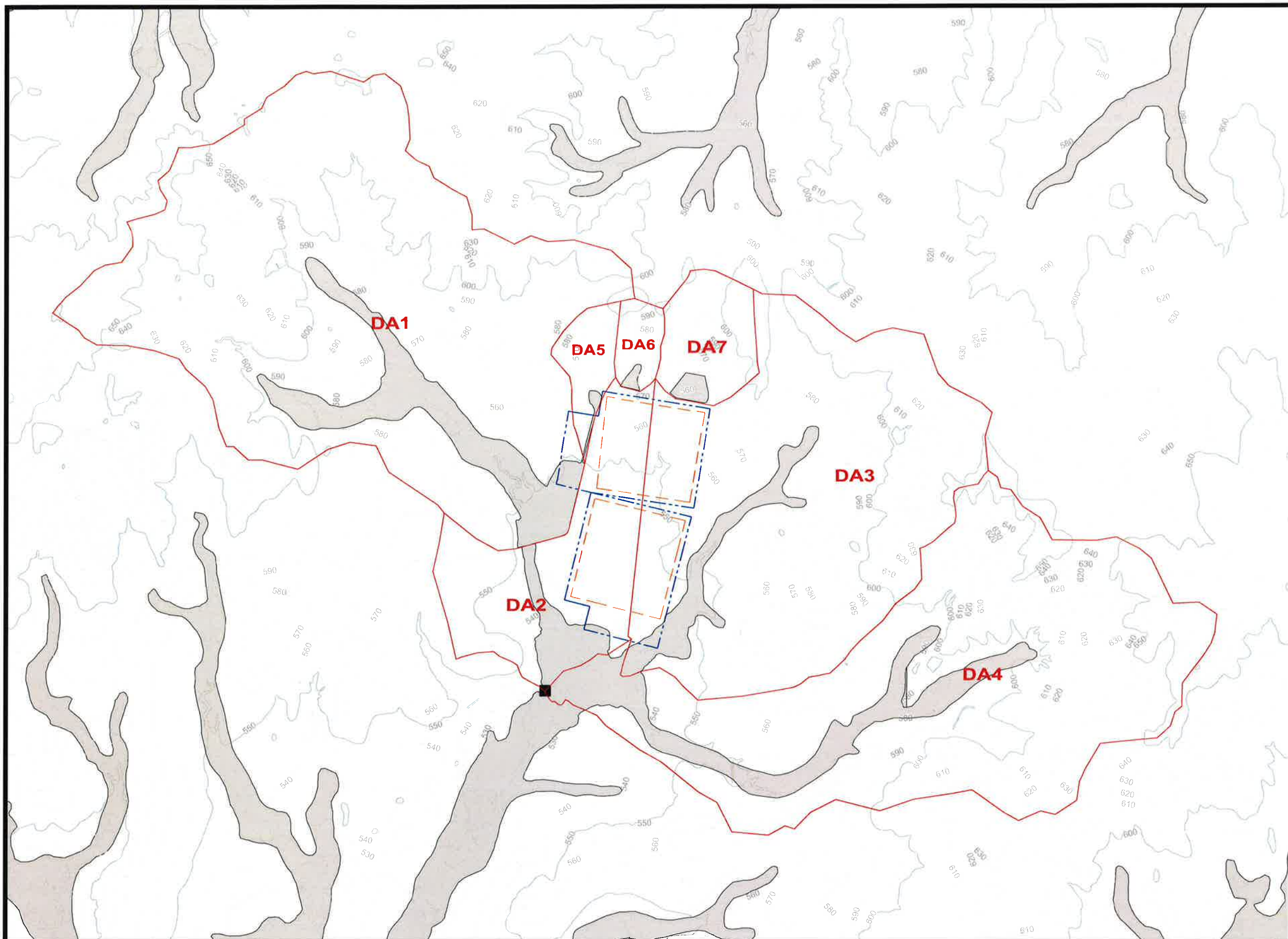
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 PREDEVELOPMENT CONDITIONS  
 FACILITY AND IMMEDIATE SURROUNDINGS**

PROJ. NO.: 148866	DATE: APRIL 2015
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CHECKED BY: RDS	2 OF 13 SHEETS
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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- INTERMEDIATE CONDITION SUBCATCHMENT BOUNDARIES
- JUNCTION 1 (SEE NOTE 5)
- CLOMR 100-YEAR FLOODPLAIN

**NOTES**

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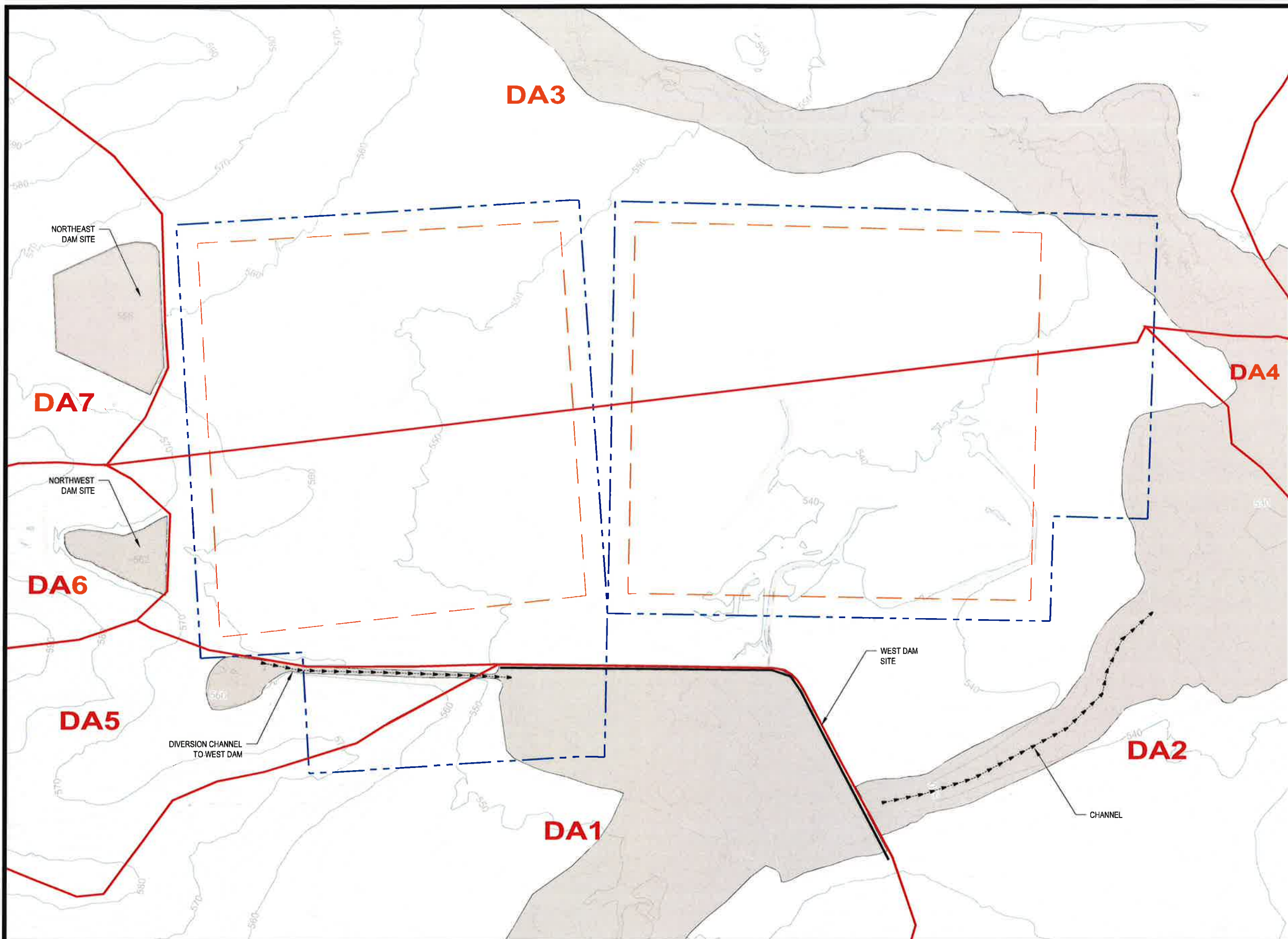
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 INTERMEDIATE DEVELOPMENT CONDITIONS - REGIONAL OVERVIEW**

PROJ. NO.:	148B66	DATE:	APRIL 2015
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**LEGEND**

- - - PERMIT BOUNDARY
- - - WASTE UNIT BOUNDARY
- - - INTERMEDIATE CONDITIONS SUBCATCHMENT BOUNDARIES
- CLOMR 100-YEAR FLOODPLAIN

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 (MODIFIED TO INCLUDE CLOMR IMPROVEMENTS).
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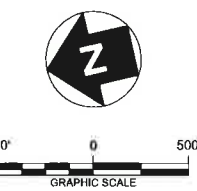
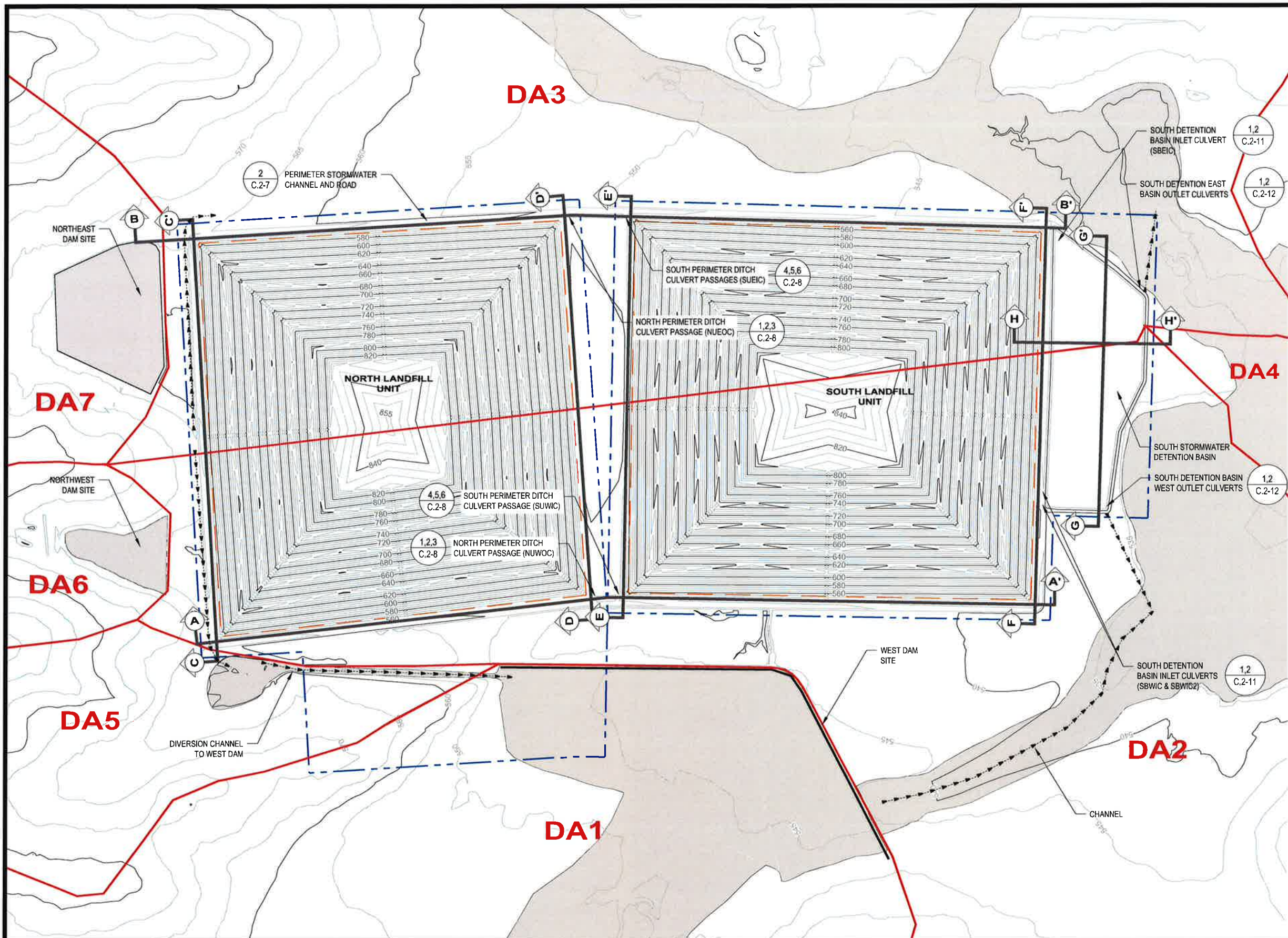


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**FACILITY SURFACE WATER DRAINAGE REPORT  
INTERMEDIATE DEVELOPMENT CONDITIONS  
FACILITY AND IMMEDIATE SURROUNDINGS**

PROJ. NO.:	148866	DATE:	APRIL 2015
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**LEGEND**

- - - PERMIT BOUNDARY
- - - WASTE UNIT BOUNDARY
- CLOMR 100-YEAR FLOODPLAIN
- PERIMETER CHANNEL AND DETENTION BASIN PROFILE LOCATIONS
- STORMWATER FLOW

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 (MODIFIED TO INCLUDE CLOMR IMPROVMENTS).
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5. PROFILES A-H ARE LOCATED ON DRAWINGS 9-11 OF APPENDIX III-C.2.
6. DRAINAGE AREAS FOR POST-DEVELOPMENT CONDITIONS ARE UNCHANGED FROM INTERMEDIATE CONDITIONS SHOWN IN DRAWINGS 3 & 4 OF APPENDIX III-C.2.

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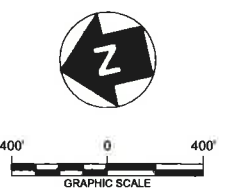
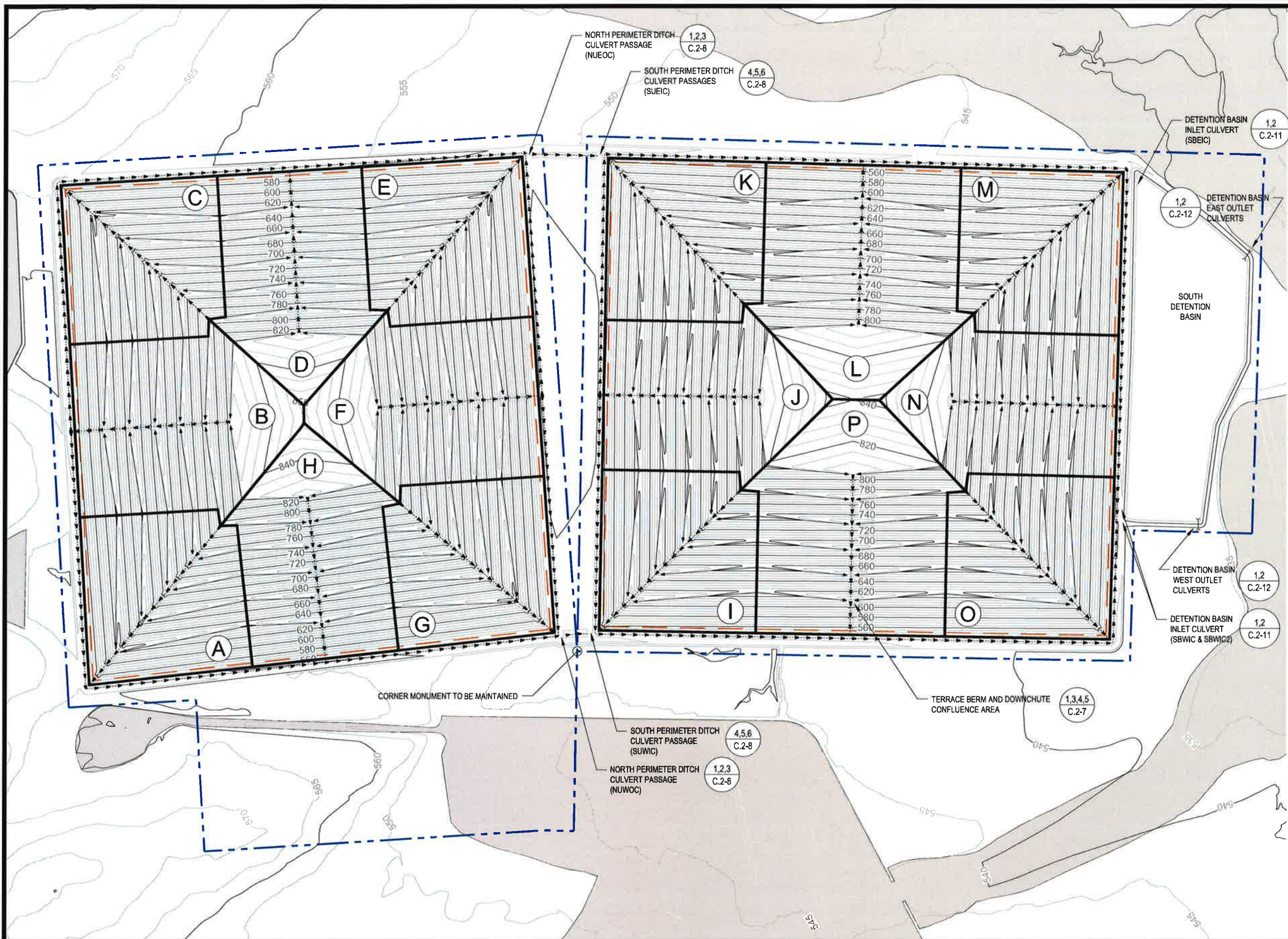
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 POST-DEVELOPMENT CONDITIONS  
 FACILITY AND IMMEDIATE SURROUNDINGS**

PROJ. NO.:	148866	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	<b>III C.2-5</b>
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- LEGEND**
- PERMIT BOUNDARY
  - WASTE UNIT BOUNDARY
  - TERRACE BERM (FLOW DIRECTION SHOWN)
  - DOWNCHUTE AND PERIMETER DITCH (FLOW DIRECTION SHOWN)
  - A CATCHMENT IDENTIFICATION
  - CLOMR 100-YEAR FLOODPLAIN

- NOTES**
1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 (MODIFIED TO INCLUDE CLOMR IMPROVEMENTS).
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  5. REFER TO APPENDIX III-C.3-2 FOR DETAILED SUBCATCHMENT DELINEATION FOR EACH CATCHMENT AREA SHOWN ON THIS DRAWING.

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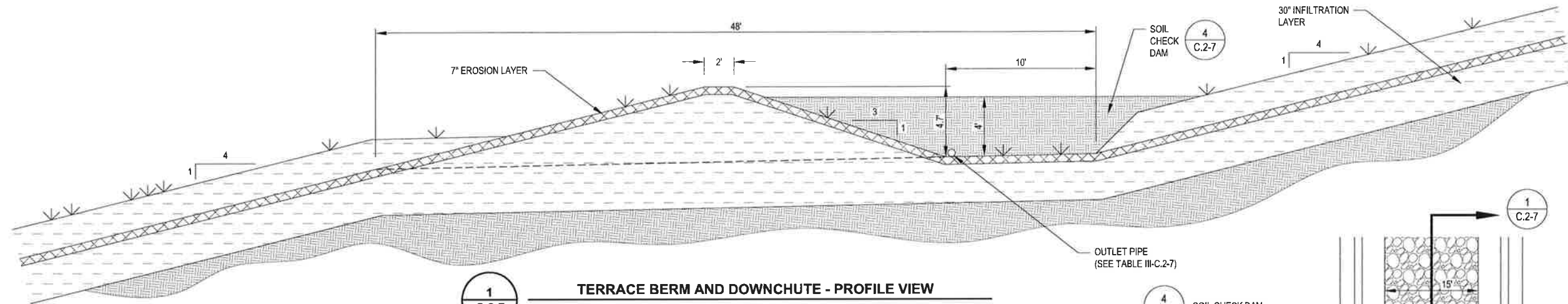
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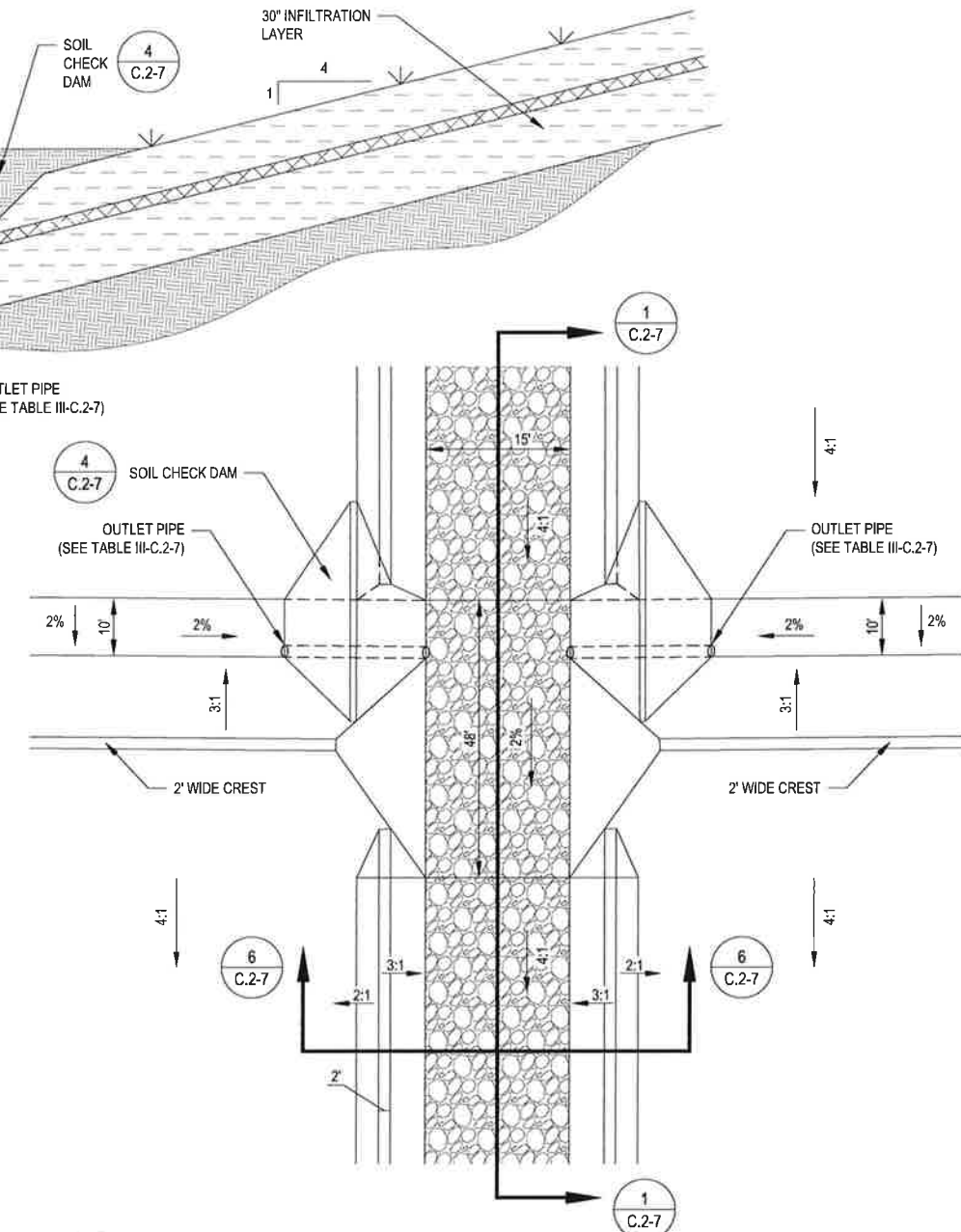
**FACILITY SURFACE WATER DRAINAGE REPORT**  
**POST-DEVELOPMENT STORMWATER FEATURE OVERVIEW**

PROJ. NO.: 148866	DATE: APRIL 2015	<b>III</b> <b>C.2-6</b> <small>6 OF 13 SHEETS</small>
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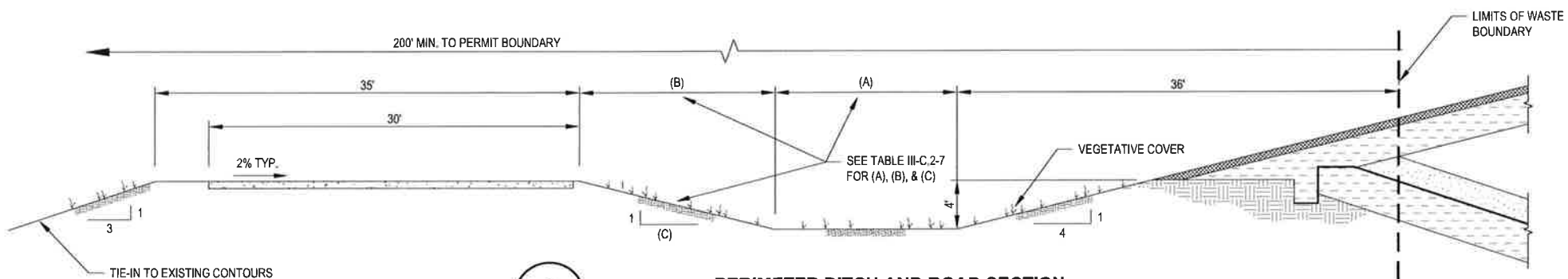




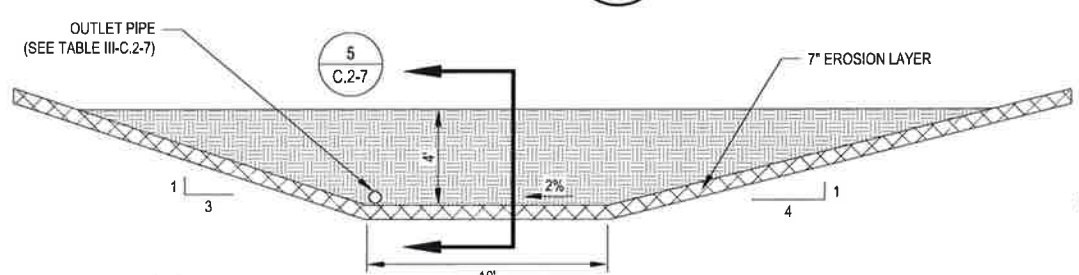
**1**  
C.2-7  
**TERRACE BERM AND DOWNCHUTE - PROFILE VIEW**  
NOT TO SCALE



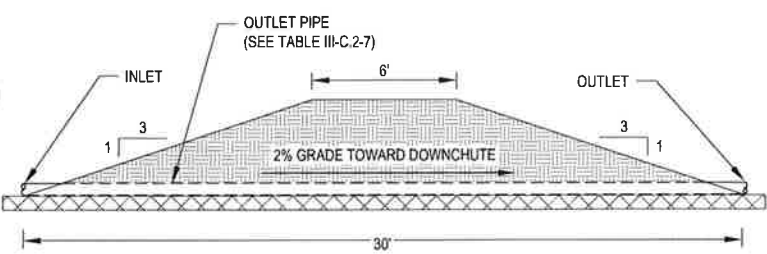
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C.2-7  
**TERRACE BERM AND DOWNCHUTE - PLAN VIEW**  
NOT TO SCALE



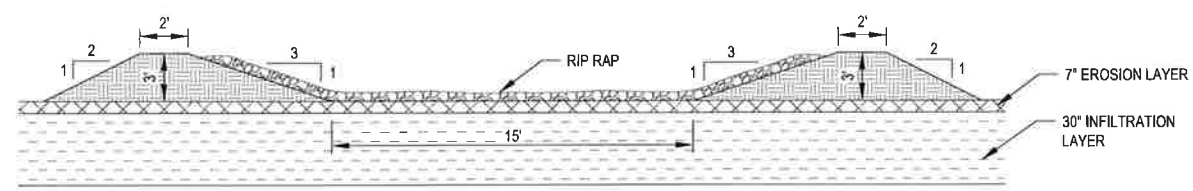
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C.2-7  
**PERIMETER DITCH AND ROAD SECTION**  
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**4**  
C.2-7  
**TYPICAL SOIL CHECK DAM PROFILE**  
NOT TO SCALE



**5**  
C.2-7  
**TYPICAL SOIL CHECK DAM SECTION**  
NOT TO SCALE



**6**  
C.2-7  
**TYPICAL DOWNCHUTE SECTION**  
NOT TO SCALE

TABLE III-C.2-7			
DETAIL CALLOUT	OBJECT	NORTH UNIT SIZE	SOUTH UNIT SIZE
2	(A)	15'	40'
2	(B)	16'	12'
2	(C)	4'	3'
3	OUTLET PIPE	14"	7"
4	OUTLET PIPE	14"	7"
5	OUTLET PIPE	14"	7"

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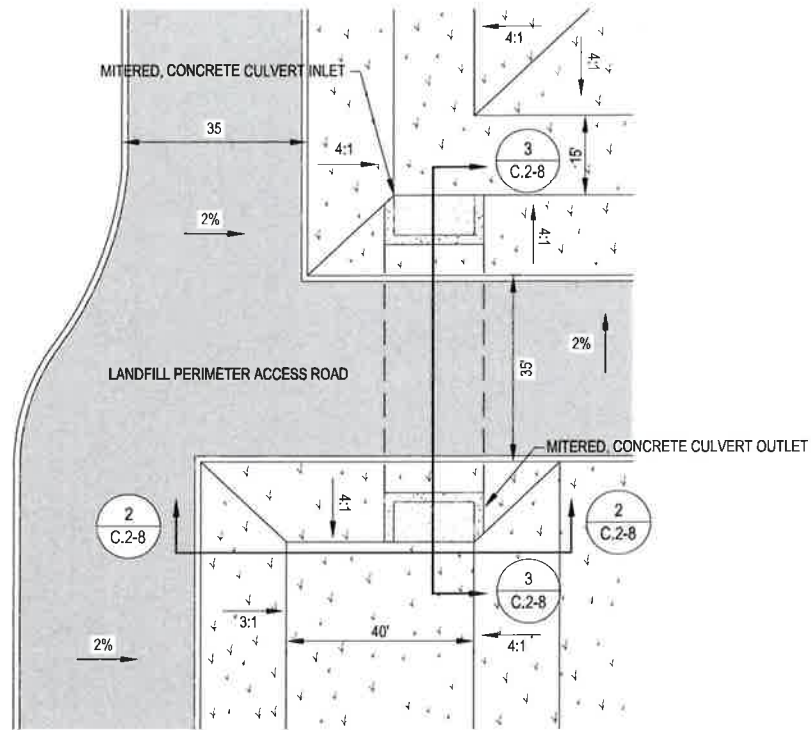
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STATE OF TEXAS  
MICHAEL W. ODEN  
67165  
REGISTERED PROFESSIONAL ENGINEER

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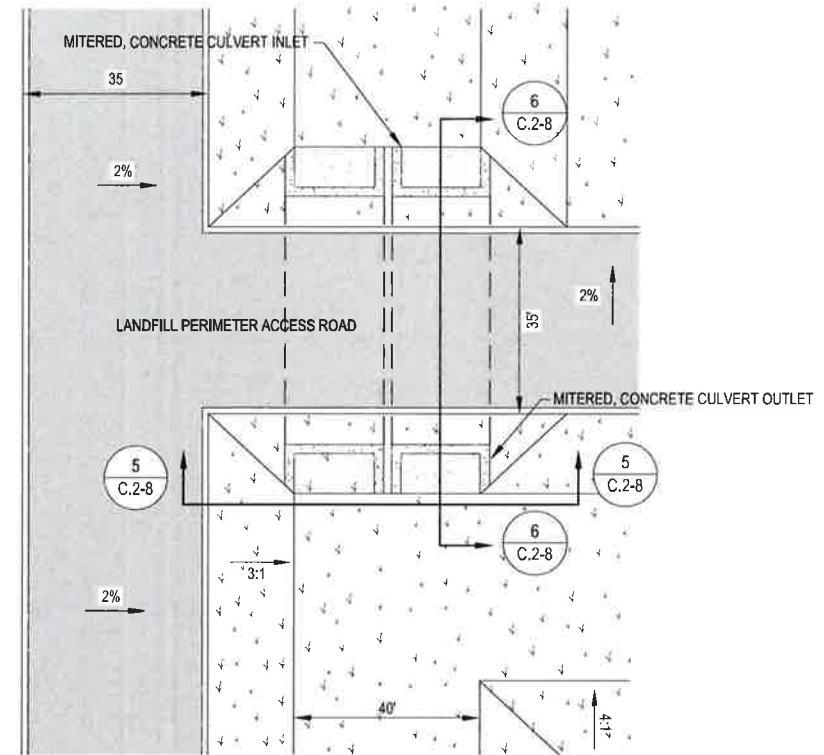
**FACILITY SURFACE WATER DRAINAGE REPORT  
TERRACE BERM, DOWNCHUTE, AND PERIMETER CHANNEL DETAILS**

PROJ. NO.: 148866 DATE: APRIL 2015  
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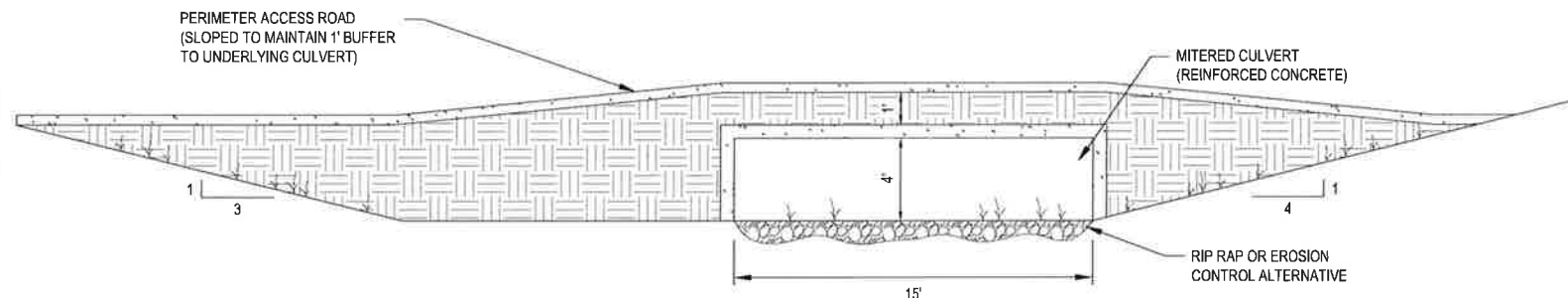
**III  
C.2-7**  
7 OF 13 SHEETS



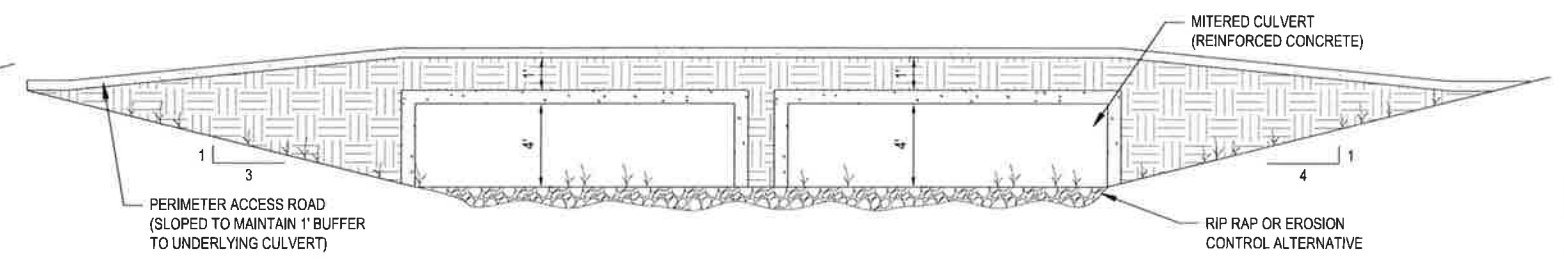
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C.2-8 **NORTH PERIMETER DITCH CULVERT PASSAGE - PLAN VIEW**  
(NUEOC & NUWOC)  
NOT TO SCALE



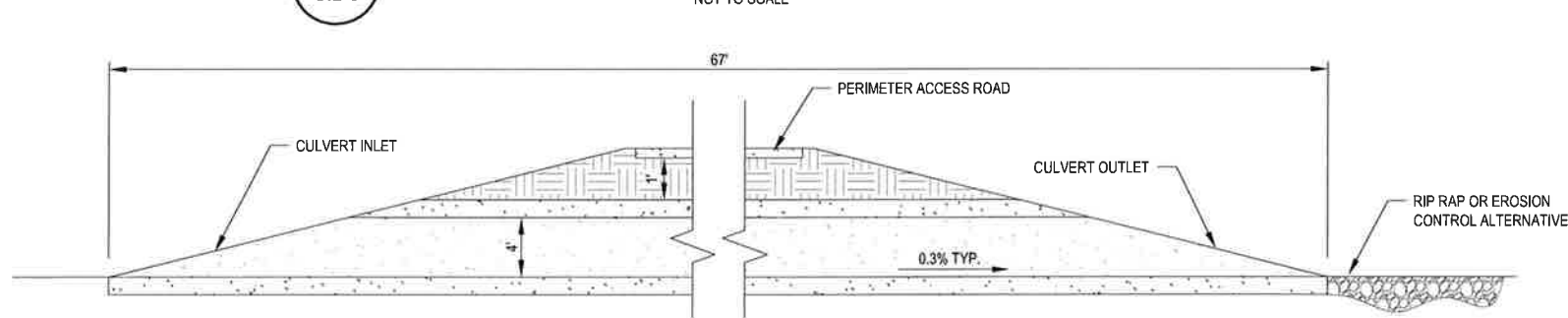
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C.2-8 **SOUTH PERIMETER DITCH CULVERT PASSAGES - PLAN VIEW**  
(SUEIC & SUWIC)  
NOT TO SCALE



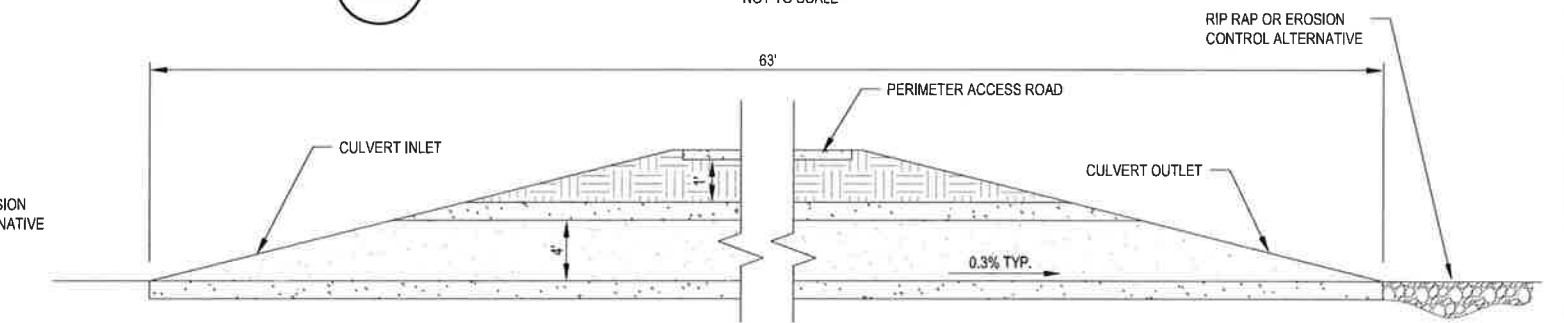
**2**  
C.2-8 **NORTH PERIMETER DITCH CULVERT PASSAGE - PROFILE VIEW**  
NOT TO SCALE



**5**  
C.2-8 **SOUTH PERIMETER DITCH CULVERT PASSAGES - PROFILE VIEW**  
NOT TO SCALE



**3**  
C.2-8 **NORTH PERIMETER DITCH CULVERT PASSAGE - SECTION VIEW**  
NOT TO SCALE



**6**  
C.2-8 **SOUTH PERIMETER DITCH CULVERT PASSAGES - SECTION VIEW**  
NOT TO SCALE

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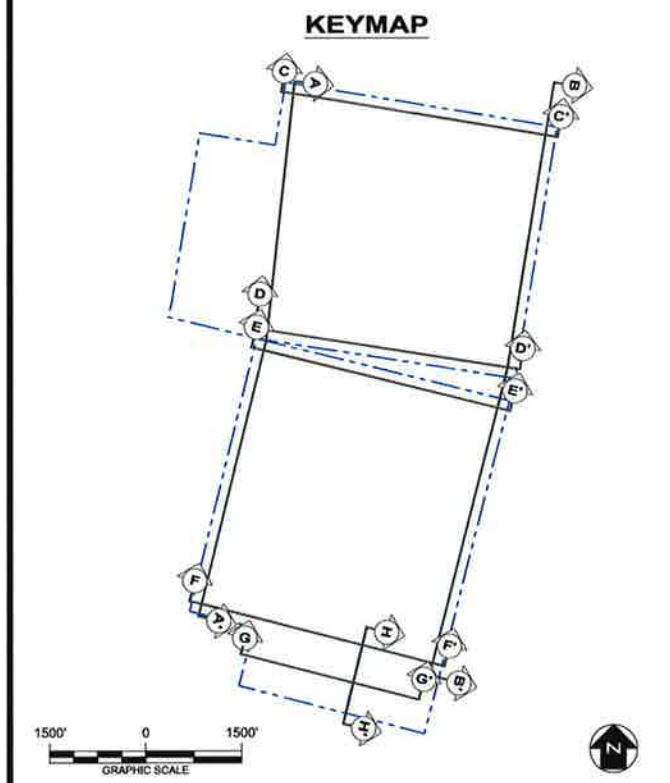
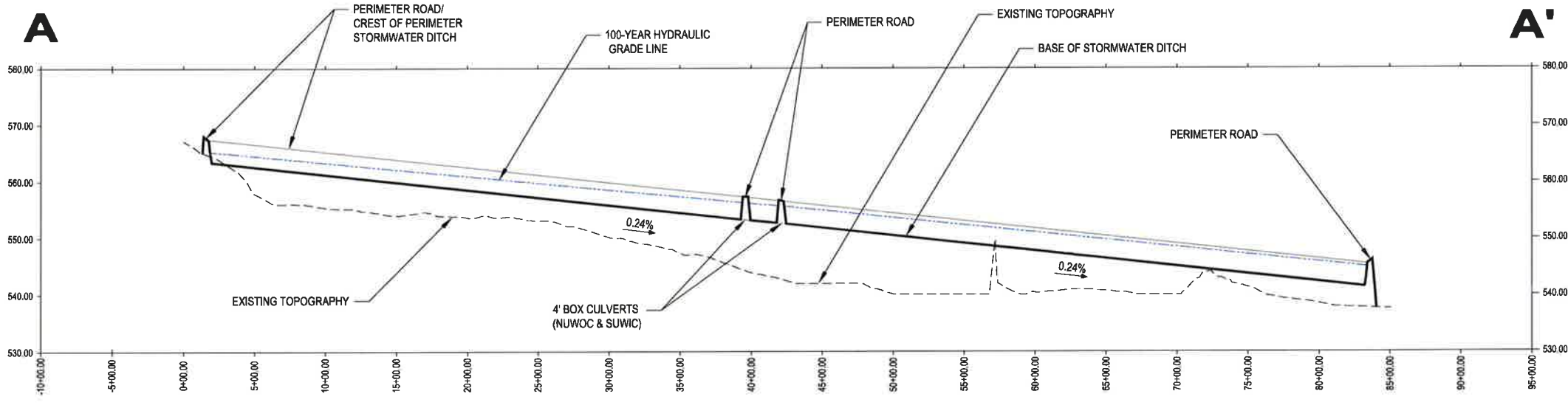
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MICHAEL W. ODEN  
REGISTERED PROFESSIONAL ENGINEER  
67165

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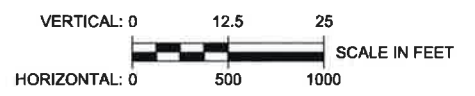
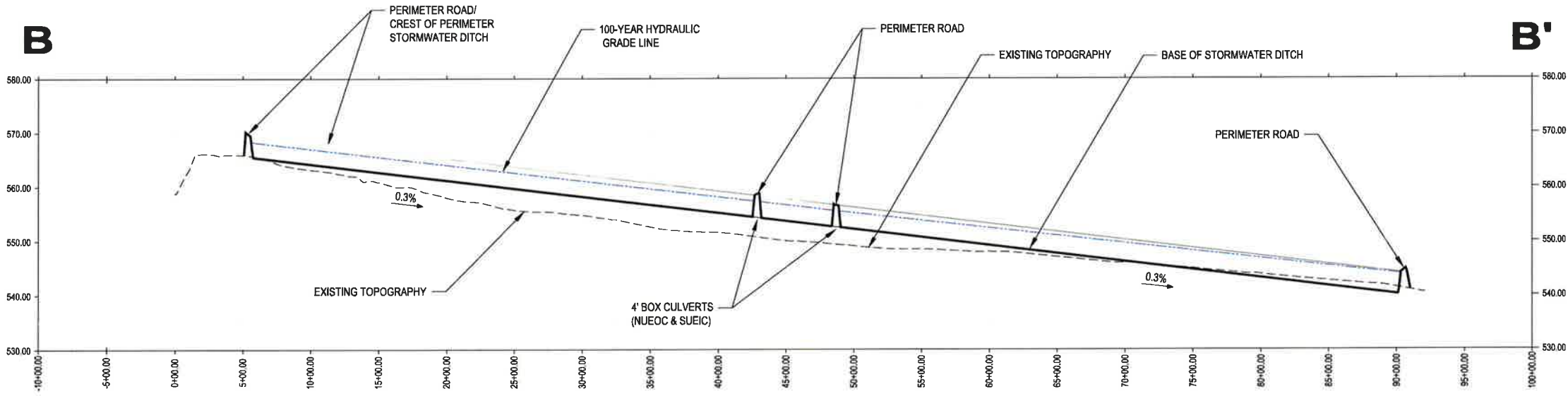
**FACILITY SURFACE WATER DRAINAGE REPORT  
PERIMETER CHANNEL AND CULVERT DETAILS**

PROJ. NO.	148866	DATE:	APRIL 2015
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**KEYMAP LEGEND**

--- APPROXIMATE FACILITY BOUNDARY



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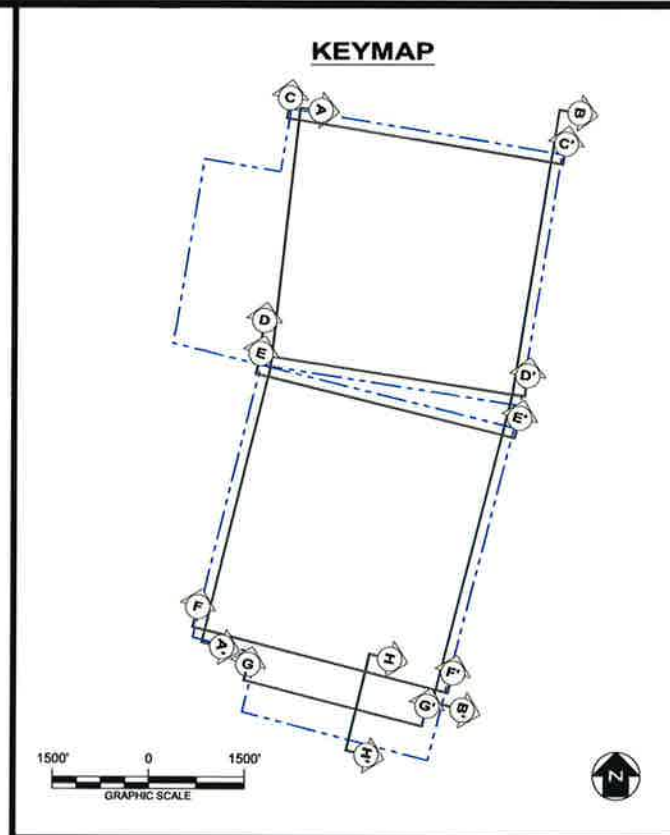
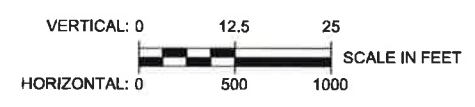
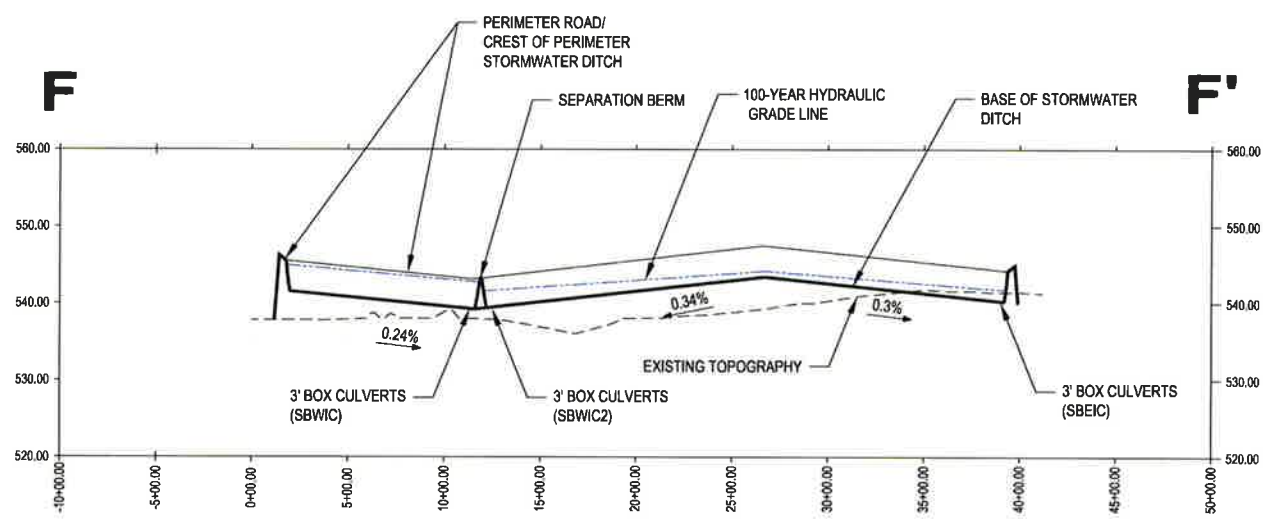
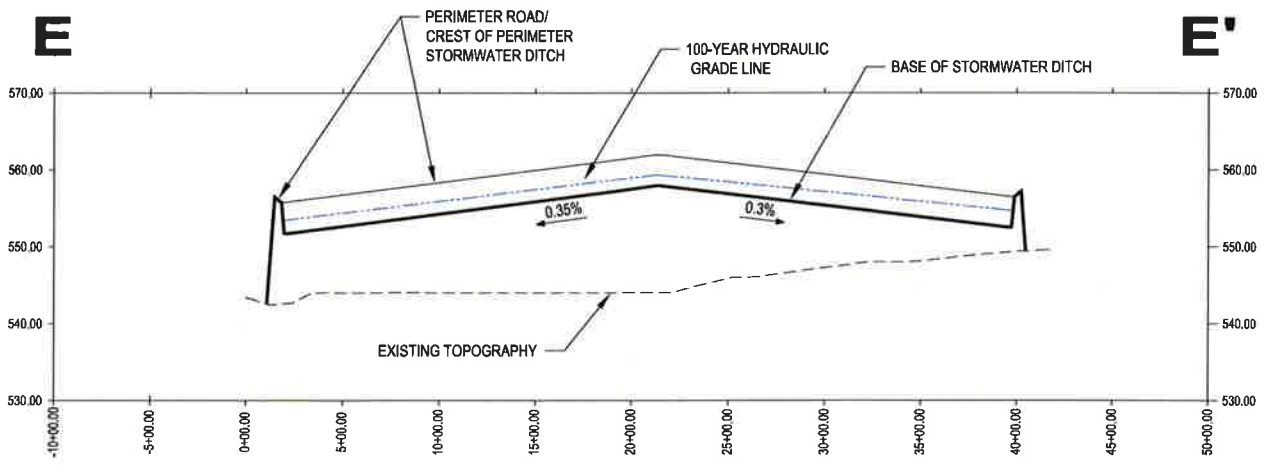
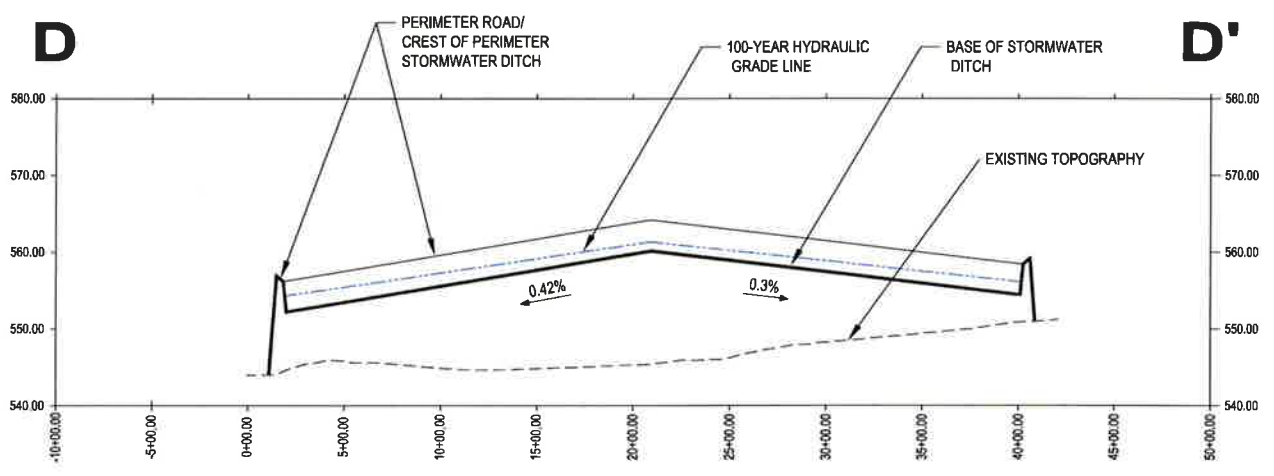
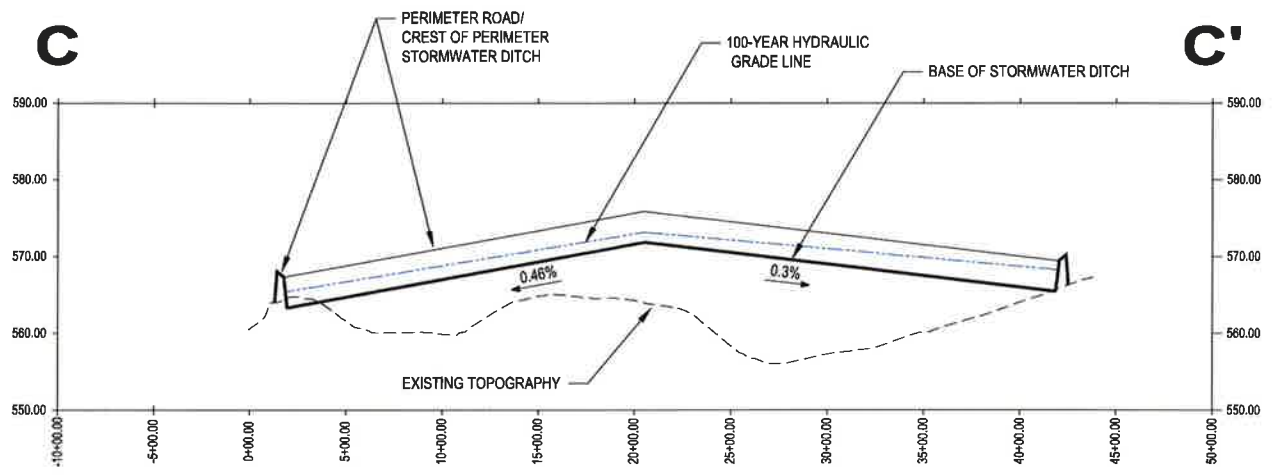
*Michael W. Oden*

**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
 MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
 PERIMETER DITCH PROFILES**

PROJ. NO.:	148866	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III <b>C.2-9</b>
DRAWN BY:	MTE		
CHECKED BY:	RDS		
APPROVED BY:	MWO		9 OF 13 SHEETS

12:49:41 PM 4/16/2015 5:01:37 PM



**KEYMAP LEGEND**  
 --- APPROXIMATE FACILITY BOUNDARY

REV. NO.	DATE	DESCRIPTION

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 TBPE FIRM F-5650

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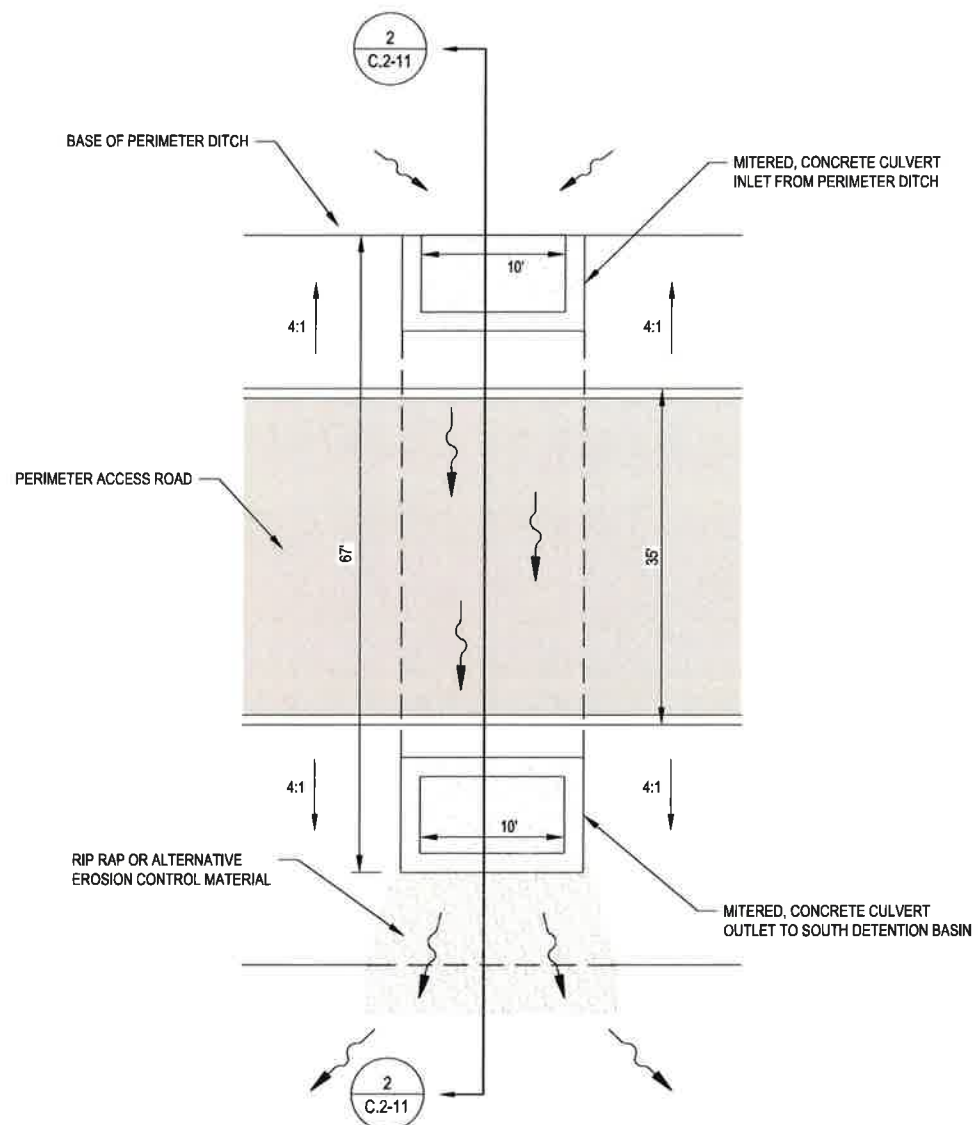
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**MICHAEL W. ODEN**  
 67165  
 REGISTERED PROFESSIONAL ENGINEER

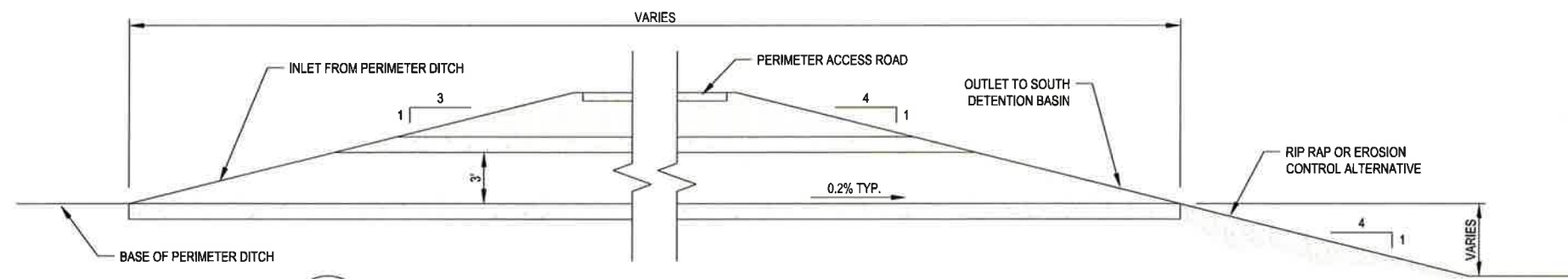
**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
 MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
 PERIMETER DITCH PROFILES**

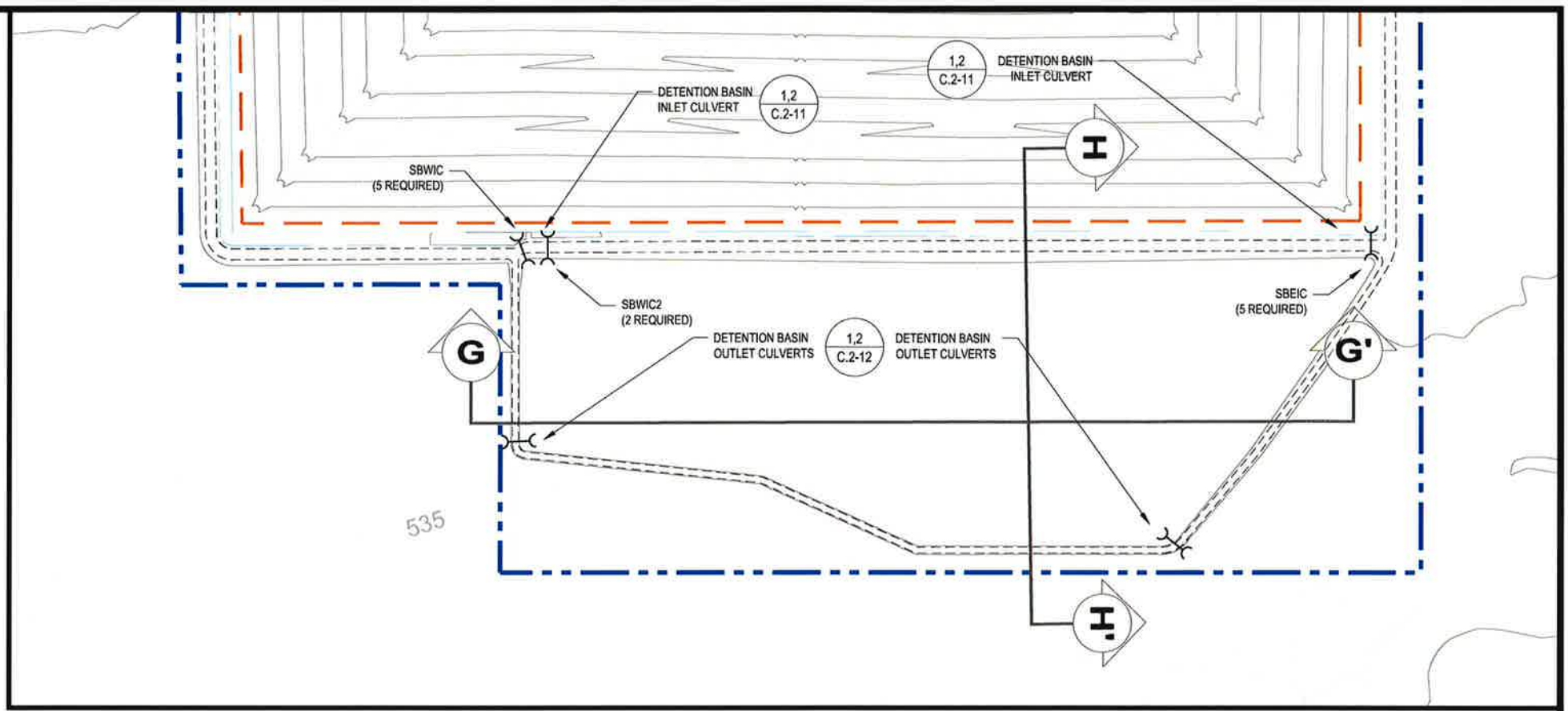
PROJ. NO.:	148B66	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III <b>C.2-10</b>
DRAWN BY:	MTE		
CHECKED BY:	RDS		
APPROVED BY:	MWO		10 OF 13 SHEETS



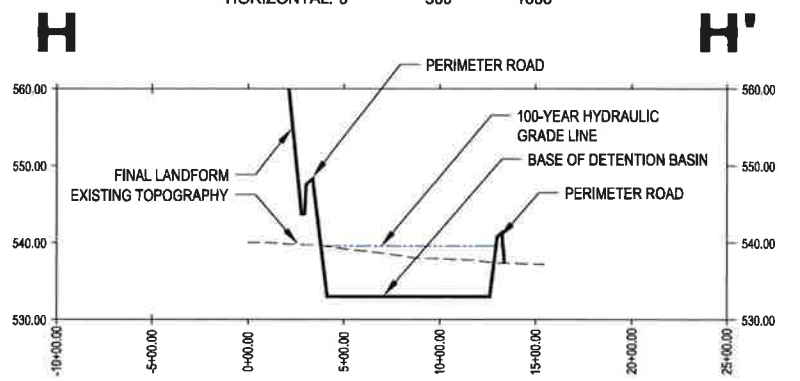
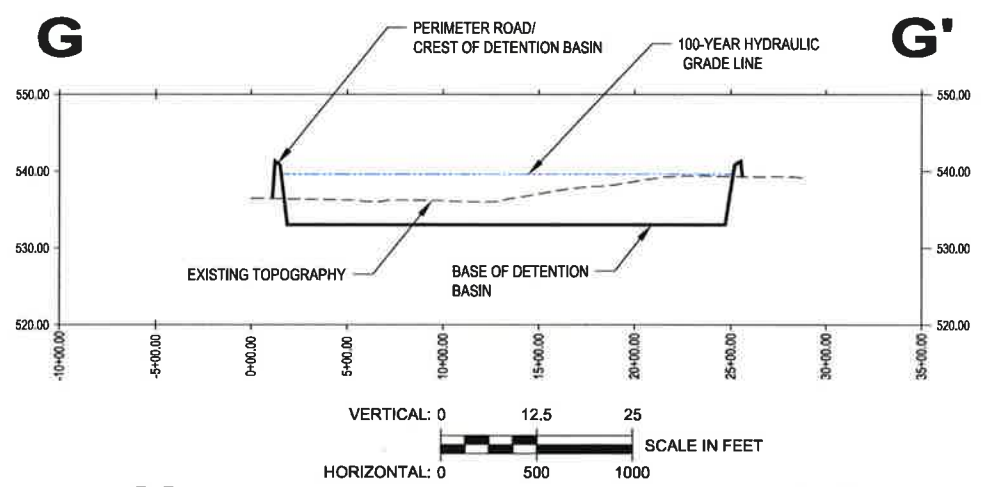
**1**  
**C.2-11**  
**DETENTION BASIN CULVERT PASSAGE - PLAN VIEW**  
(SBWIC, SBWIC2, SBEIC)  
NOT TO SCALE



**2**  
**C.2-11**  
**DETENTION BASIN INLET CULVERT PASSAGE - SECTION VIEW**  
NOT TO SCALE



- LEGEND**
- PERMIT BOUNDARY
  - WASTE UNIT BOUNDARY
  - PERIMETER ROAD
  - PERIMETER STORMWATER DITCH
  - MITERED CONCRETE CULVERT



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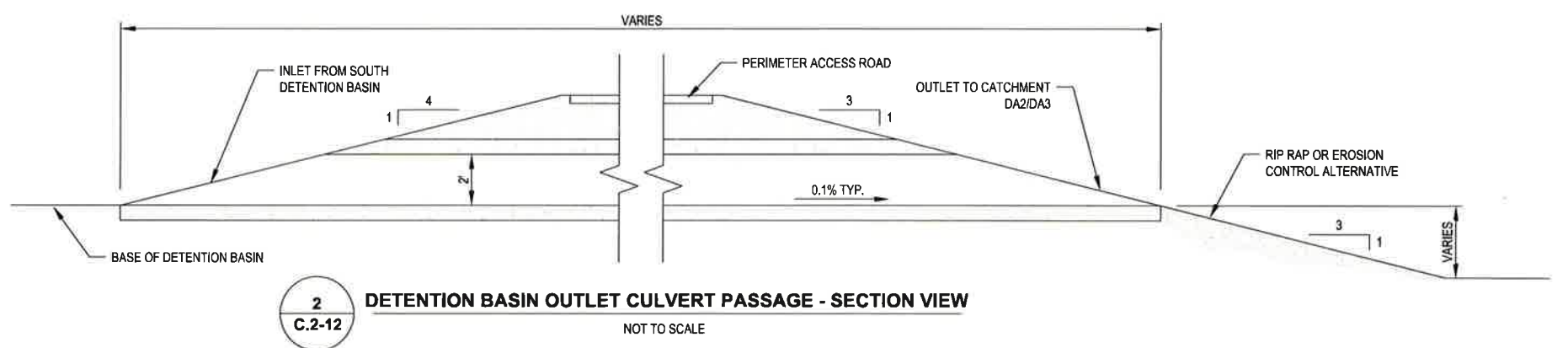
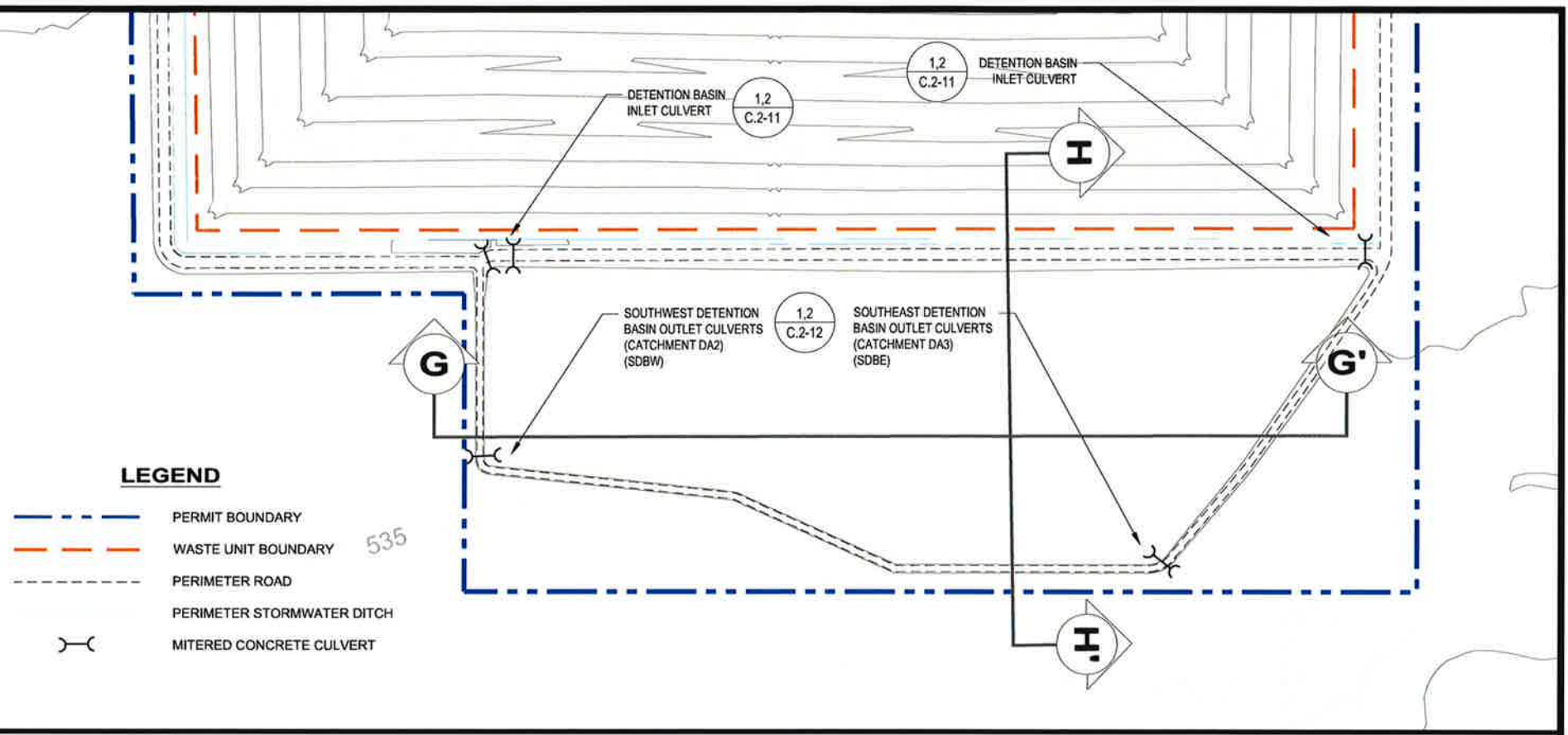
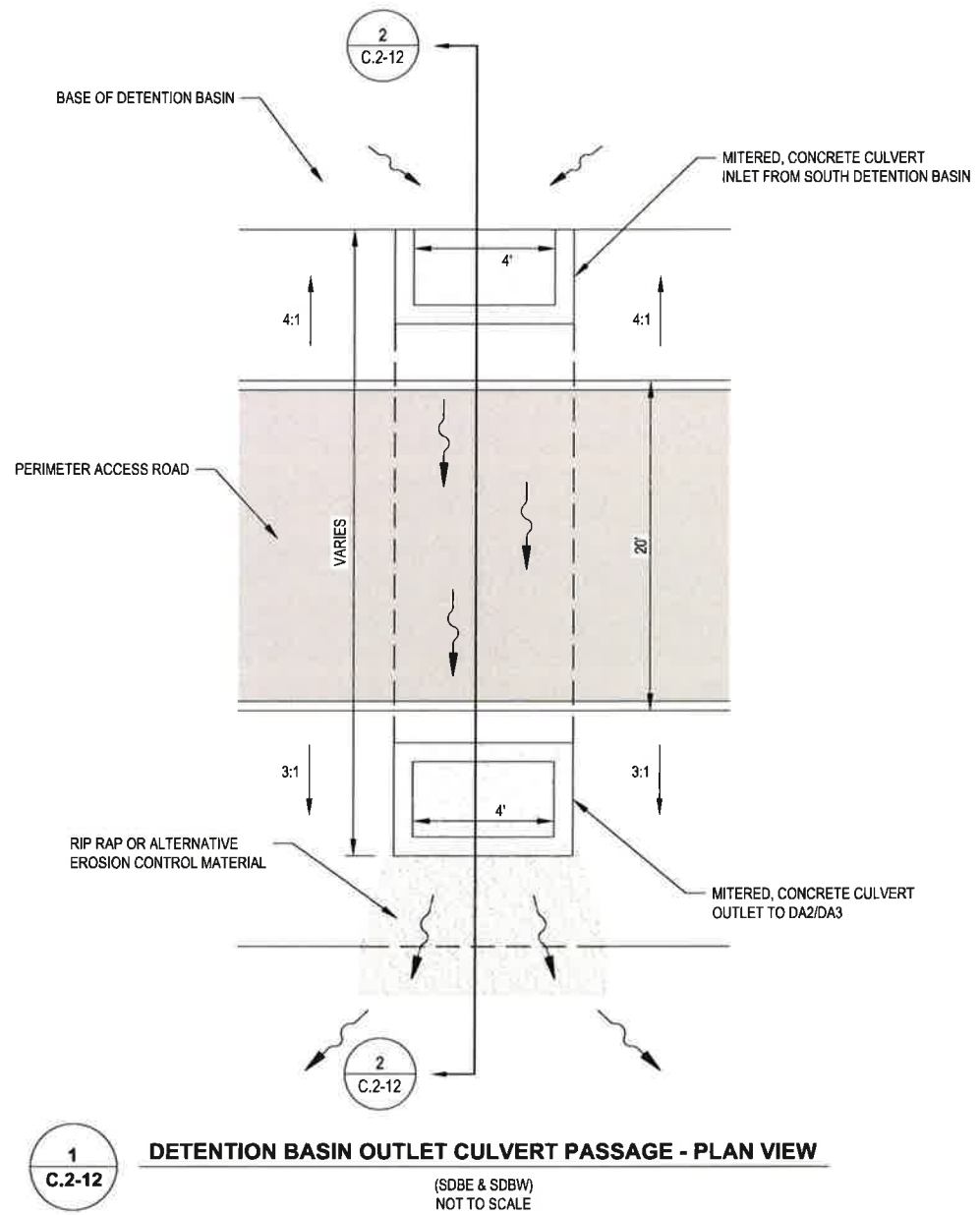
STATE OF TEXAS  
MICHAEL W. ODEN  
REGISTERED PROFESSIONAL ENGINEER  
67165

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**WEBB COUNTY, TEXAS**  
**MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT**  
**DETENTION BASIN PLAN, PROFILE, AND DETAILS**

PROJ. NO.:	148866	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	MTE		<b>C.2-11</b>
CHECKED BY:	RDS		11 OF 13 SHEETS
APPROVED BY:	MWO		



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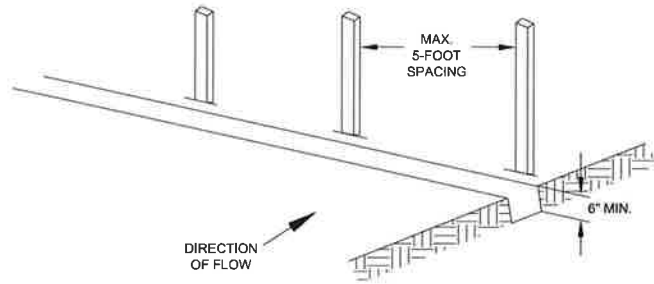
*Michael W. Oden*

**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
 MSW 2374**

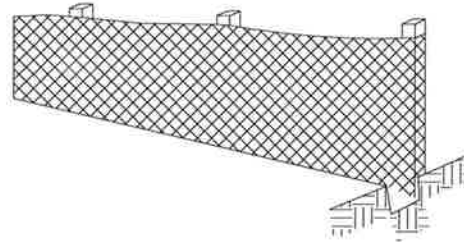
**FACILITY SURFACE WATER DRAINAGE REPORT  
 DETENTION BASIN PLAN, PROFILE, AND DETAILS**

PROJ. NO.:	148B66	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III <b>C.2-12</b>
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CHECKED BY:	RDS		
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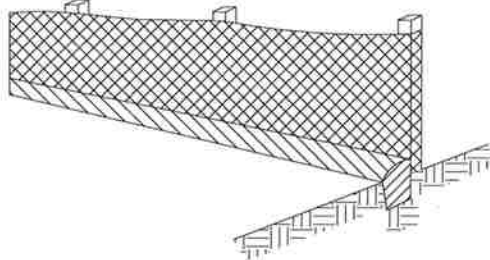
STEP 1  
SET POSTS AND EXCAVATE OR SLIT-TRENCH A SIX-INCH DEEP TRENCH UPSLOPE ALONG THE LINE OF THE POST.



STEP 2  
ATTACH THE GEOTEXTILE FILTER FABRIC TO EACH POST WITH A MINIMUM OF 3 (THREE) FASTENERS PER POST AND EXTEND TO THE BOTTOM OF THE TRENCH. ACCEPTABLE FASTENERS INCLUDE STAPLES, ZIP TIES, OR WIRE TIES.



STEP 3  
BACKFILL AND COMPACT THE EXCAVATED SPOIL MATERIALS.

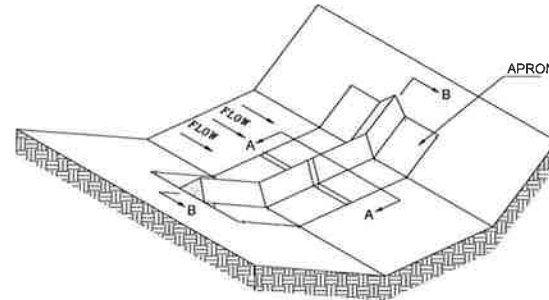


GEOTEXTILE REQUIREMENT	TEST METHOD	MARV
GRAB STRENGTH -MACHINE DIRECTION	ASTM D 4632	500 N 450 N
PERMITTIVITY	ASTM D 4491	0.05 SEC <sup>-1</sup>
APPARENT OPENING SIZE*	ASTM D 4751	0.60 mm
ULTRAVIOLET STABILITY (RETAINED STRENGTH)	ASTM D 4355	70% AFTER 500 HOURS

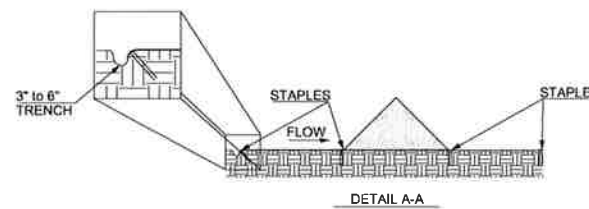
\* VALUE FOR APPARENT OPENING SIZE REPRESENTS MAXIMUM AVERAGE ROLL VALUE.

NOTE:  
1. EQUIVALENT DESIGN MAY BE USED AT THE DISCRETION OF THE FACILITY OPERATOR OR CONTRACTOR WITH THE APPROVAL OF THE CQA OFFICER.

**1**  
**C.2-13**  
**TYPICAL SILT FENCE DETAIL**  
NOT TO SCALE

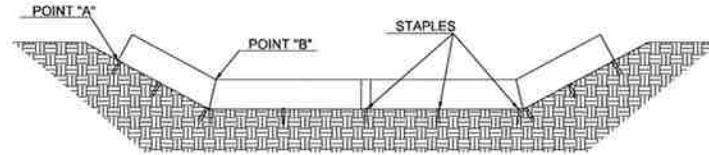


SILT DIKE UNIT  
CUT SECTION



DETAIL A-A

STAPLES SHALL BE PLACED WHERE THE UNITS OVERLAP



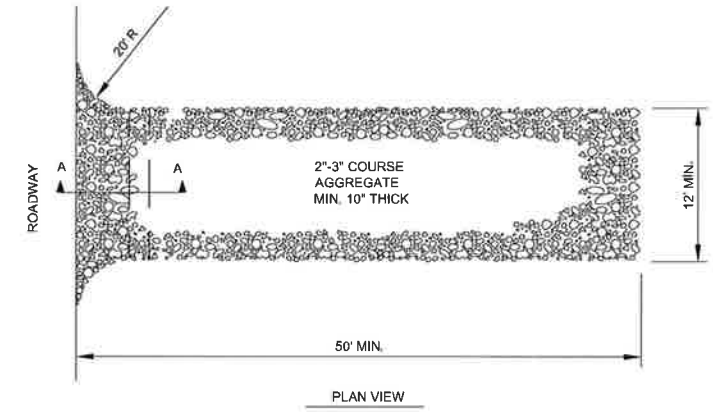
DIKE SECTION  
DETAIL B-B

POINT "A" MUST BE HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

NOTES:

1. TRIANGULAR SILT DIKES OR A SIMILAR PRODUCT SHALL BE USED AS DITCH CHECKS. EROSION BLANKETS OR SOD MAY ALSO BE USED IN CONCENTRATED FLOW AREAS.
2. SILT DIKE INSTALLATION AND MATERIAL STANDARDS WILL BE BASED ON MANUFACTURER RECOMMENDATION.
3. TRIANGULAR SILT DIKES ARE TO BE PLACED MINIMUM 300' ON CENTER IN PERIMETER DITCHES AND SWALES UNTIL SEEDING IS ESTABLISHED.
4. DETAIL ADAPTED FROM ACF ENVIRONMENTAL CAD DETAILS, WWW.ACFENVIRONMENTAL, INC., ACCESSED OCT 22, 2009.
5. EQUIVALENT DESIGN MAY BE USED AT THE DISCRETION OF THE FACILITY OPERATOR OR CONTRACTOR WITH THE APPROVAL OF THE CQA OFFICER.

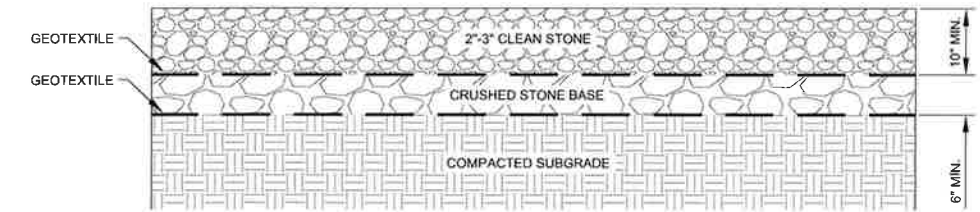
**2**  
**C.2-13**  
**TYPICAL TRIANGULAR SILT DIKE**  
NOT TO SCALE



PLAN VIEW

NOTES:

1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



PROFILE VIEW

**3**  
**C.2-13**  
**STABILIZED CONSTRUCTION ENTRANCE**  
NOT TO SCALE

**SEDIMENTATION AND EROSION CONTROL GENERAL NOTES**

1. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. SOIL STABILIZATION MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES.
2. SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
3. AREAS OR EMBANKMENTS HAVING SLOPES STEEPER THAN 3H:1V, SHALL BE STABILIZED WITH SOD, TURF REINFORCED MAT, HYDROSEEDING, OR DISCED STRAW IN COMBINATION WITH SEEDING.
4. ALL CULVERTS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
5. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES WILL BE MAINTAINED AND REPAIRED AS NEEDED.
6. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER OR GOVERNING AGENCY.



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**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
WEBB COUNTY, TEXAS  
MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
EROSION CONTROL DETAILS**

PROJ. NO.:	148866	DATE:	APRIL 2015
DESIGNED BY:	-	DRAWING NO.:	III <b>C.2-13</b>
DRAWN BY:	BWM		
CHECKED BY:	RDS		
APPROVED BY:	MWO		13 OF 13 SHEETS

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