

**Changed Pages**

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

**Facility Surface Water Drainage Drawings**

**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  
Revised September 2015  
Technically Complete March 11, 2016  
Modified August 2016  
Modified November 2016  
Updated August 2017**

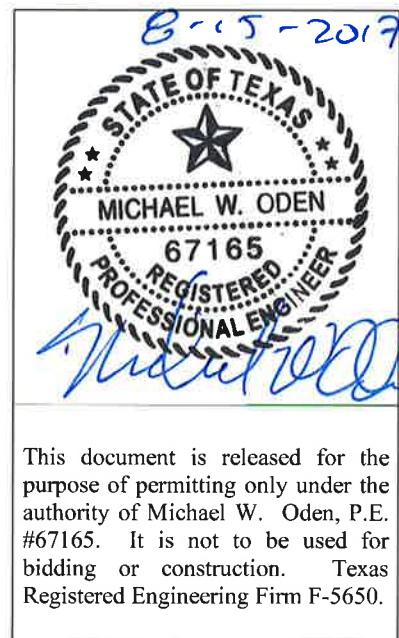
**Prepared for:  
Rancho Viejo Waste Management, LLC  
1116 Calle del Norte  
Laredo, TX 78041**

**Prepared by:  
APTIM Environmental and  
Infrastructure, Inc.  
(f/k/a CB&I Environmental and  
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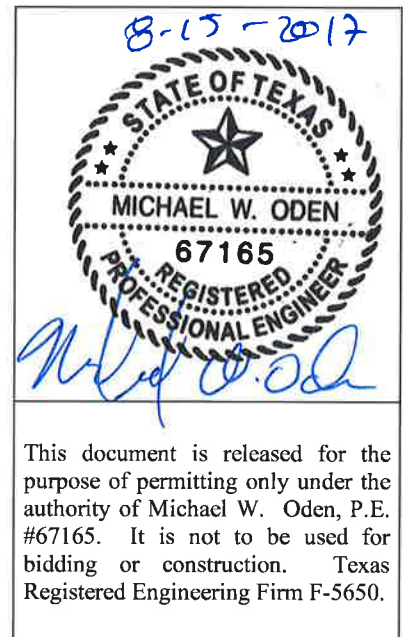
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Dallas, TX 75234**

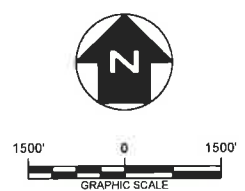
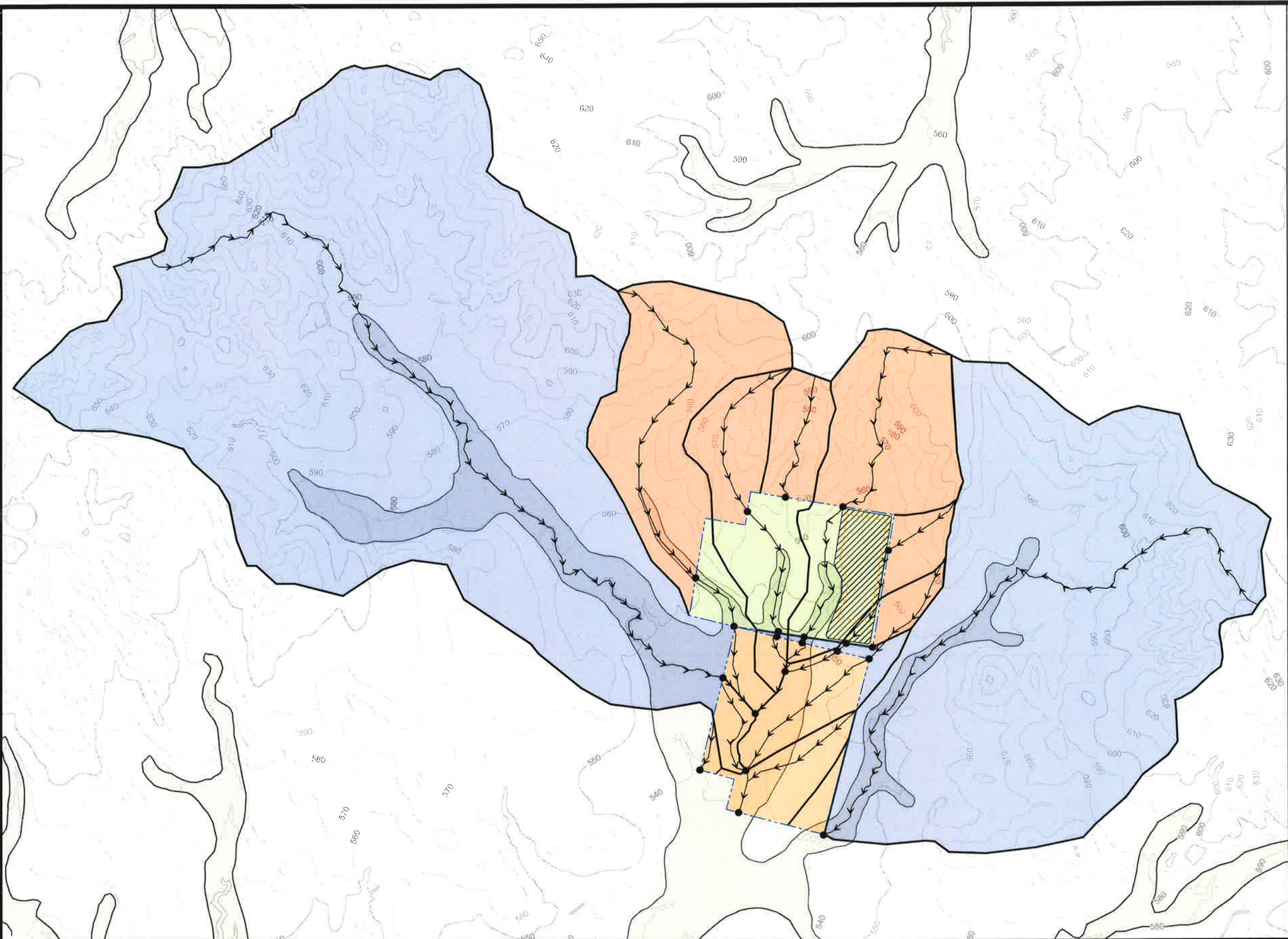


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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-ON NORTH AREA
- RUN-OFF NORTH AREA
- RUN-ON SOUTH AREA
- RUN-OFF SOUTH AREA
- 100-YEAR FLOODPLAIN  
(PER FIRM DATED APRIL 2, 2008,  
SEE NOTE 6)

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 AND FROM CONTOURS ADAPTED FROM TEXAS NATURAL RESOURCE INFORMATION SYSTEM "TEXAS ELEVATION FRAMEWORK (HYPSOGRAPHY)" QUADRANGLES.
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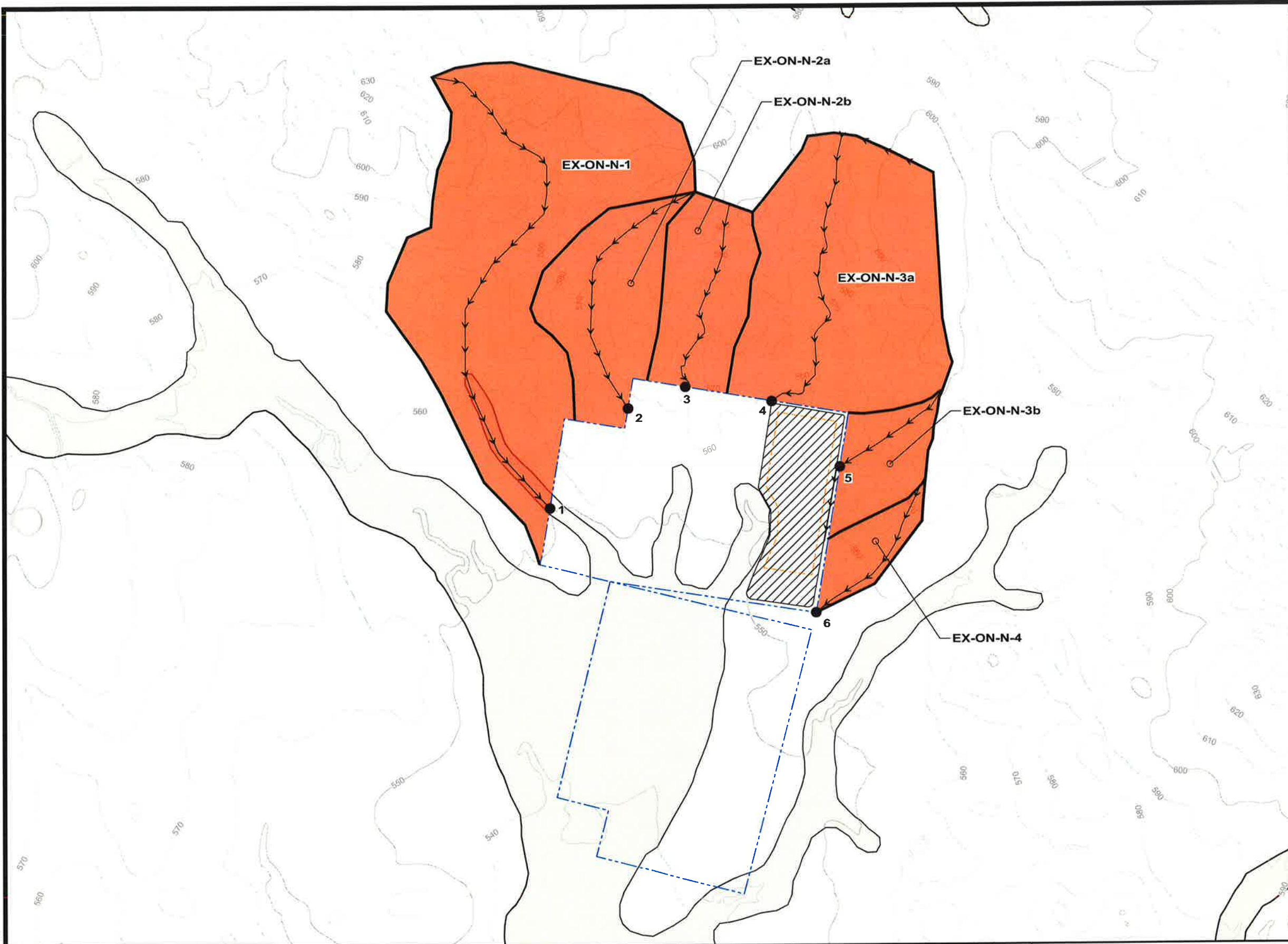
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**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
 MSW 2374**

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

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PROPOSED LANDFILL DEVELOPMENT AREA
- TIME OF CONCENTRATION FLOW PATH
- RUN-ON POINT OF COMPARISON
- RUN-ON NORTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	POC-ON-N-1
2	POC-ON-N-2a
3	POC-ON-N-2b
4	POC-ON-N-3a
5	POC-ON-N-3b
6	POC-ON-N-4

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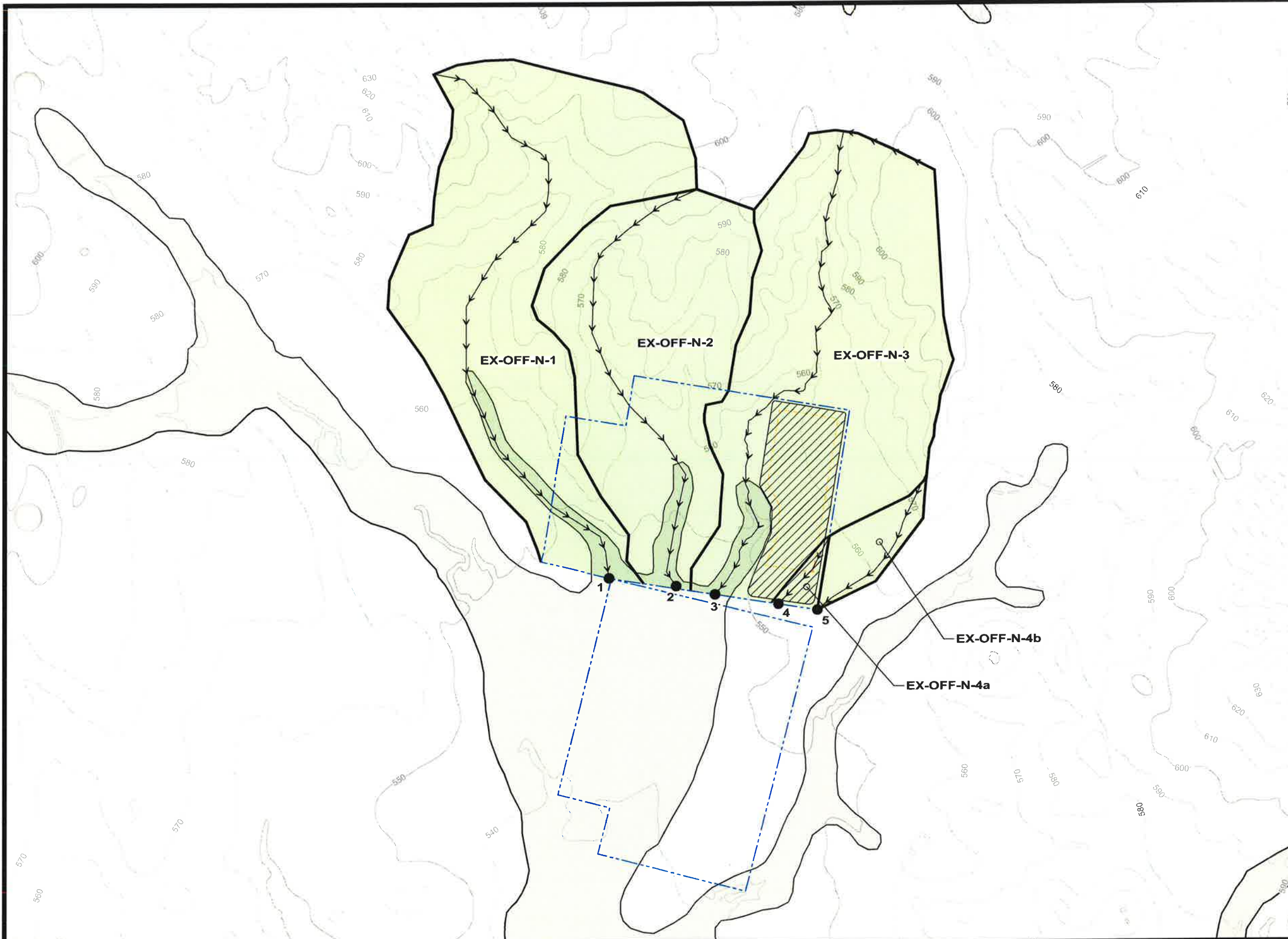
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**PESCADITO ENVIRONMENTAL RESOURCE CENTER**  
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**MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT**  
**PRE-DEVELOPMENT CONDITIONS**  
**NORTH AREA - RUN-ON SUBCATCHMENTS**

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**LEGEND**


- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PROPOSED LANDFILL DEVELOPMENT AREA
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-OFF NORTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	POC-OFF-N-1
2	POC-OFF-N-2
3	POC-OFF-N-3
4	POC-OFF-N-4a
5	POC-OFF-N-4b

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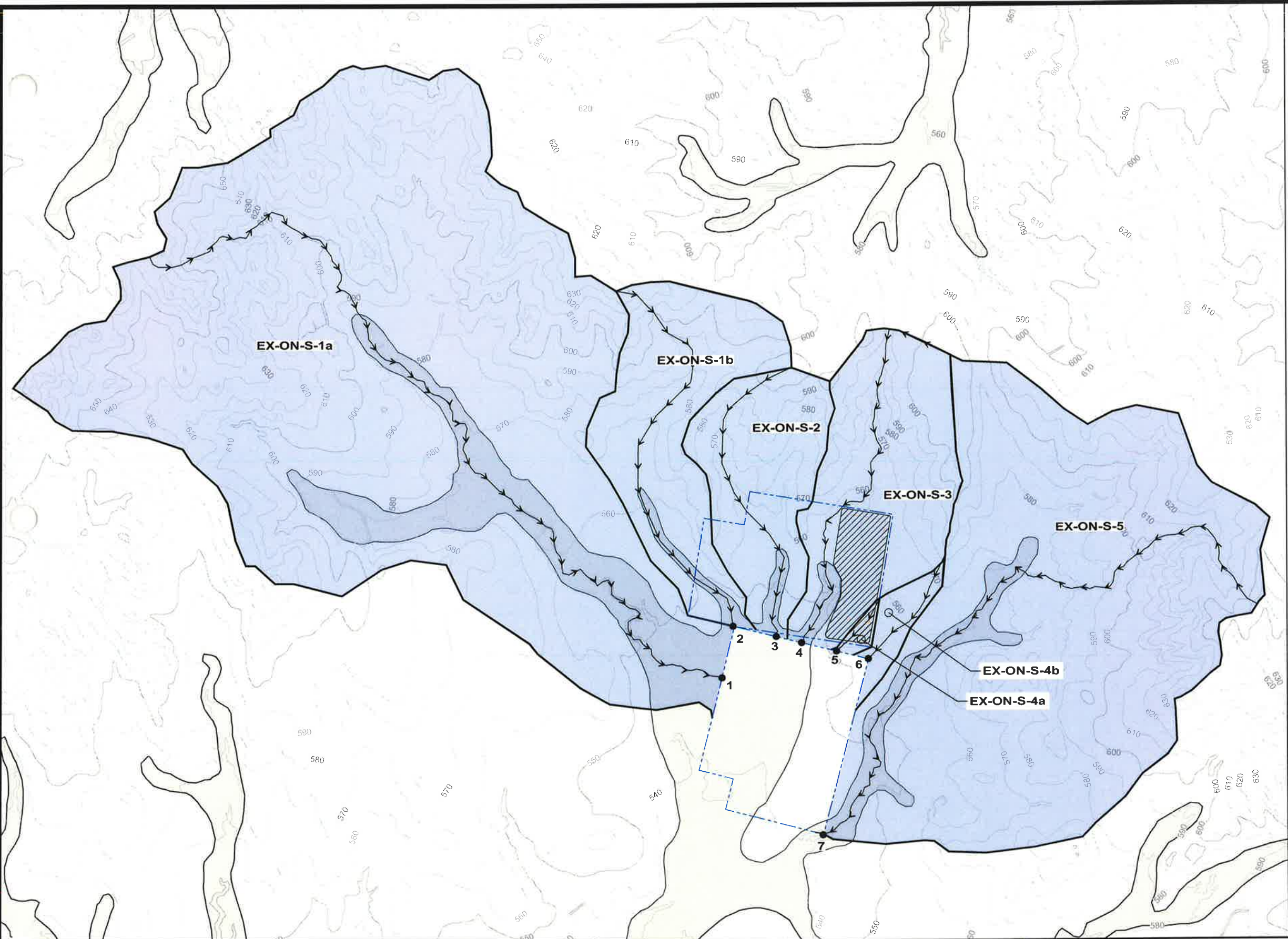
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 PRE-DEVELOPMENT CONDITIONS  
 NORTH AREA - RUN-OFF SUBCATCHMENTS**

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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-ON SOUTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	POC-ON-S-1a
2	POC-ON-S-1b
3	POC-ON-S-2
4	POC-ON-S-3
5	POC-ON-S-4a
6	POC-ON-S-4b
7	POC-ON-S-5

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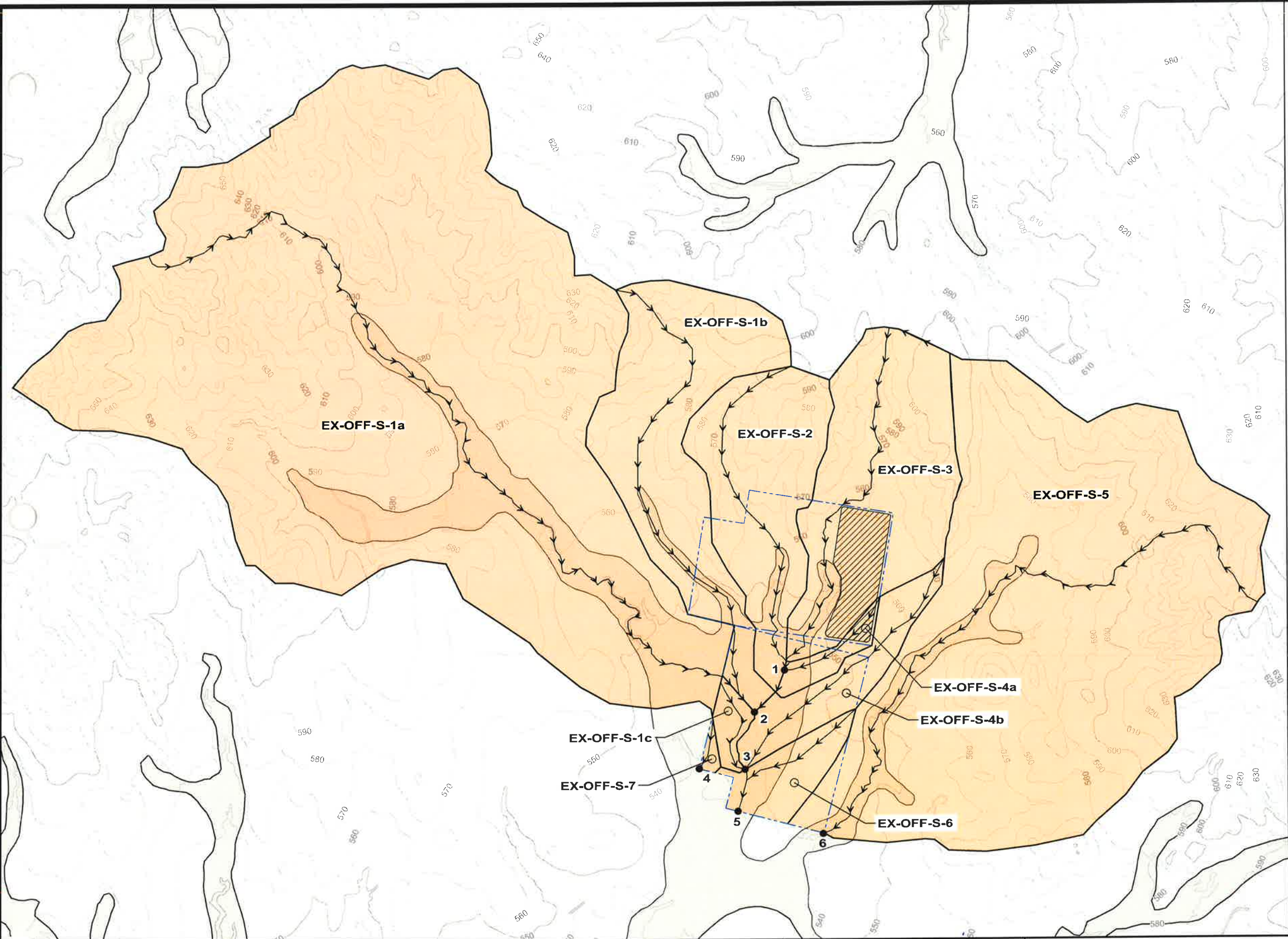
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**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 PRE-DEVELOPMENT CONDITIONS  
 SOUTH AREA - RUN-ON SUBCATCHMENTS**

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**LEGEND**


- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PROPOSED LANDFILL DEVELOPMENT AREA
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-OFF SOUTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	CONFLUENCE 1
2	CONFLUENCE 2
3	BURRITO TANK
4	POC-OFF-S-7
5	POC-OFF-S-6
6	POC-OFF-S-5

**NOTES**


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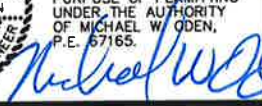


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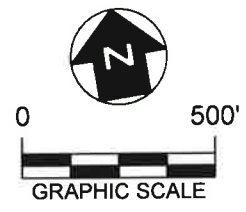
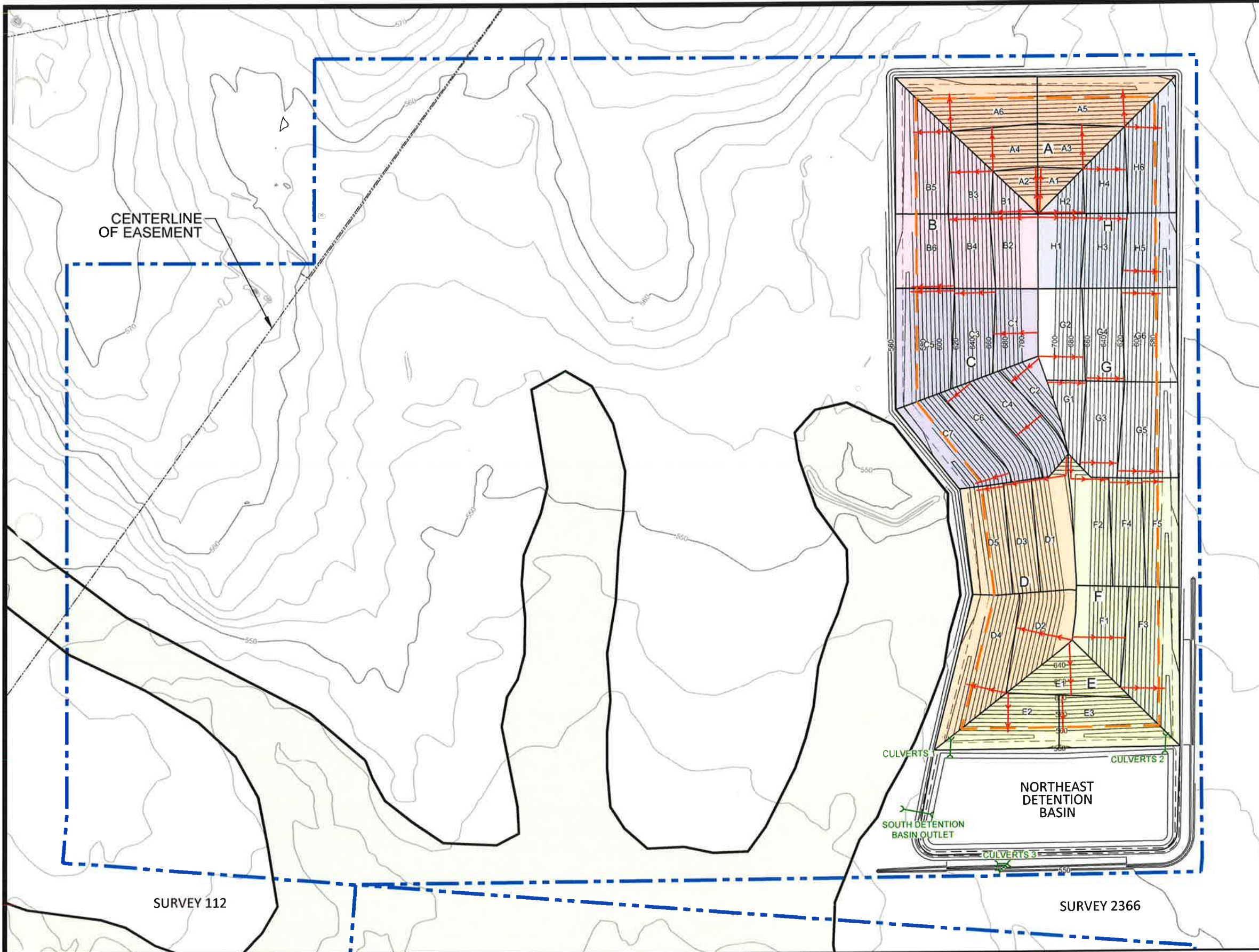


**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
 WEBB COUNTY, TEXAS  
 MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
 PRE-DEVELOPMENT CONDITIONS  
 SOUTH AREA - RUN-OFF SUBCATCHMENTS**

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**LEGEND**

- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE WASTE LIMITS
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 4)
- SUBCATCHMENT BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- PROPOSED CULVERT STRUCTURE

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STATE OF TEXAS  
 MICHAEL W. ODEN  
 67165  
 PROFESSIONAL ENGINEER

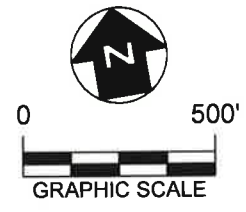
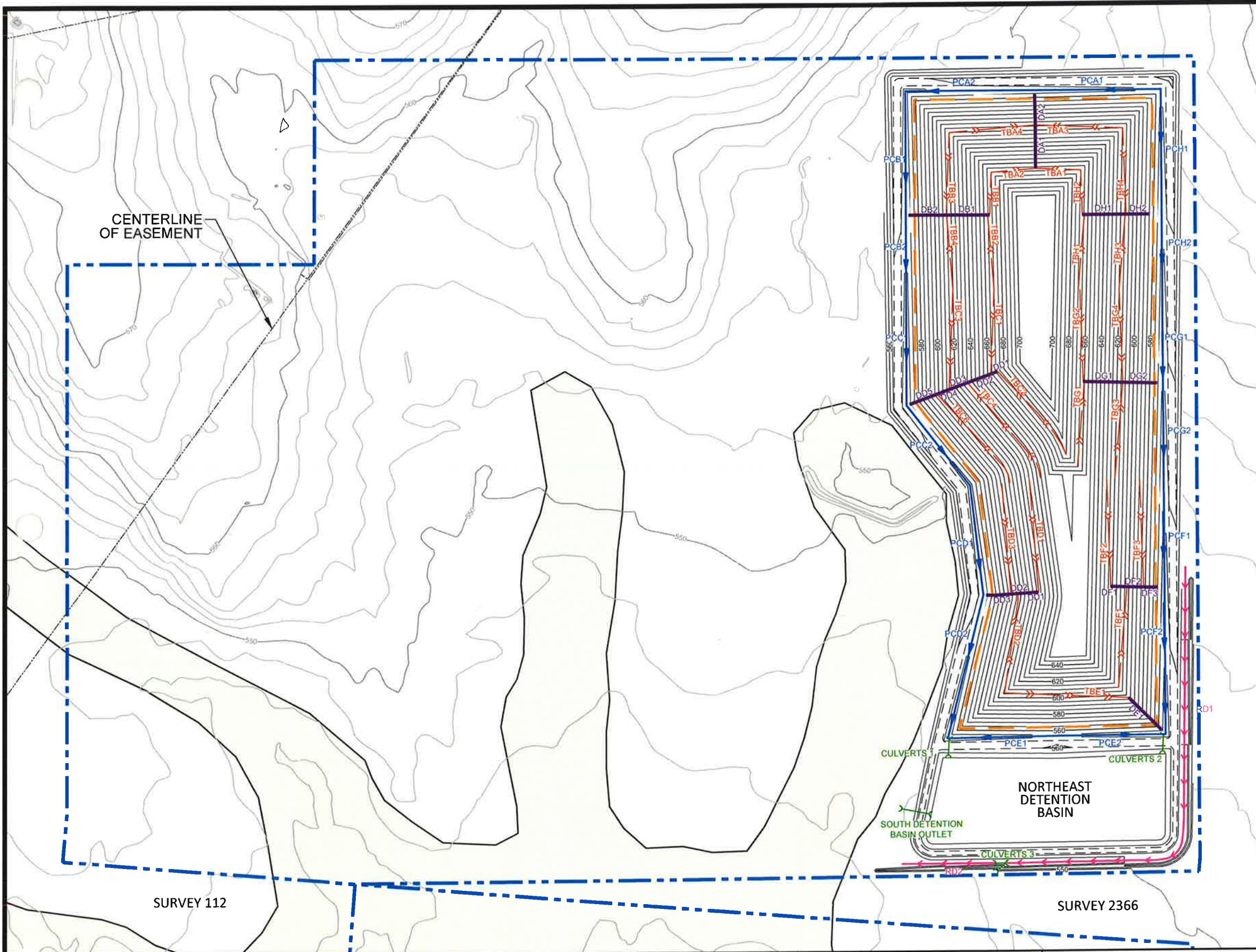
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 POST-DEVELOPMENT CONDITIONS  
 LANDFILL SUBCATCHMENTS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
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**LEGEND**

- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE WASTE LIMITS
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 4)
- PROPOSED DOWNCHUTE DITCH
- PROPOSED TERRACE BERM LOCATION
- PROPOSED PERIMETER DRAINAGE CHANNEL
- PROPOSED CULVERT STRUCTURE
- PROPOSED PERIMETER RUN-ON DIVERSION DITCH

**NOTES**

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STATE OF TEXAS  
 MICHAEL W. ODEN  
 67165  
 REGISTERED PROFESSIONAL ENGINEER

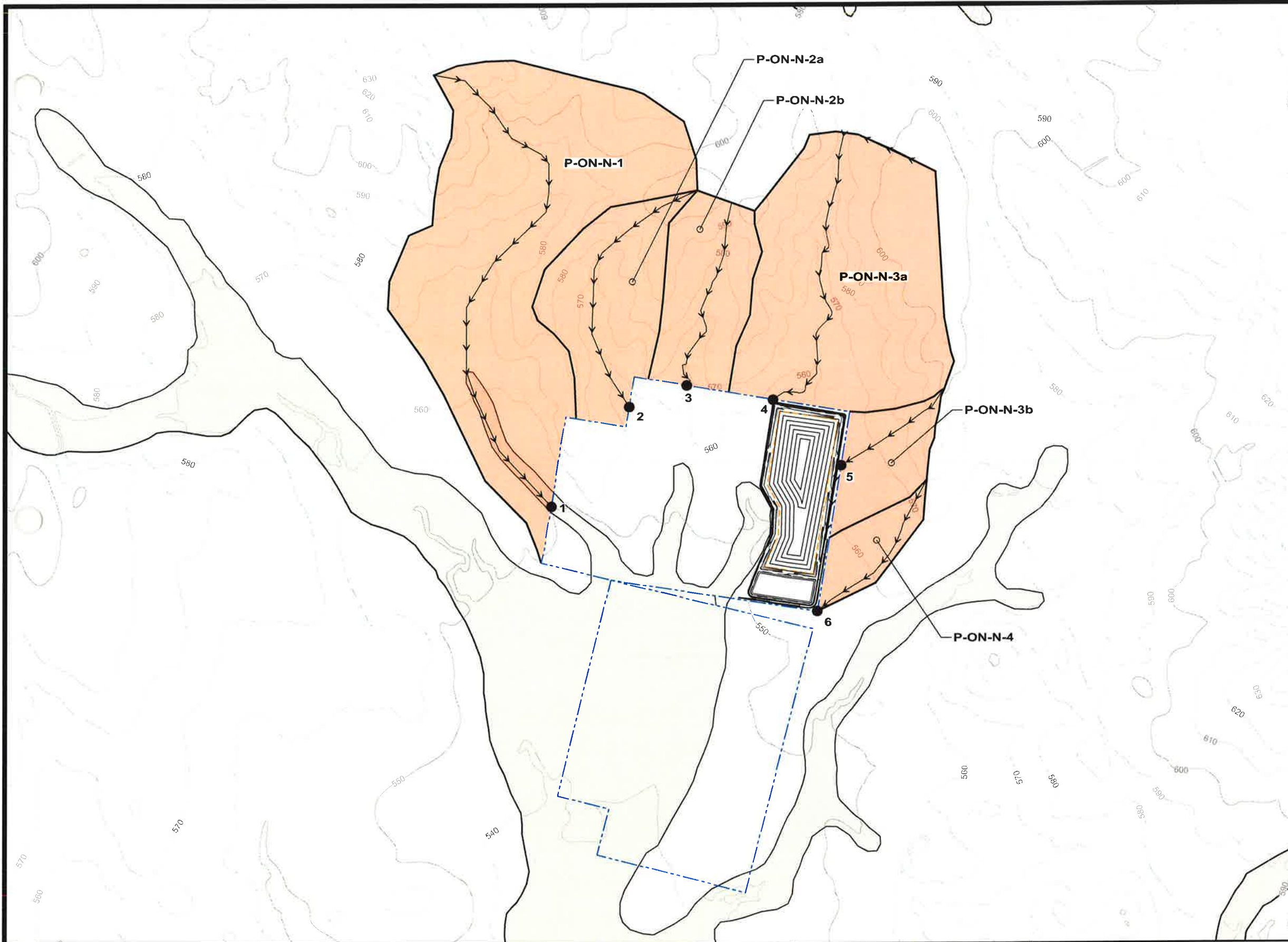
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**FACILITY SURFACE WATER DRAINAGE REPORT  
 POST-DEVELOPMENT CONDITIONS  
 PROPOSED LANDFILL DRAINAGE FEATURES**

PROJ. NO.:	155145	DATE:	AUGUST 2017
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**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PROPOSED LANDFILL DEVELOPMENT AREA
- ←←← TIME OF CONCENTRATION FLOW PATH
- RUN-ON POINT OF COMPARISON
- RUN-ON NORTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

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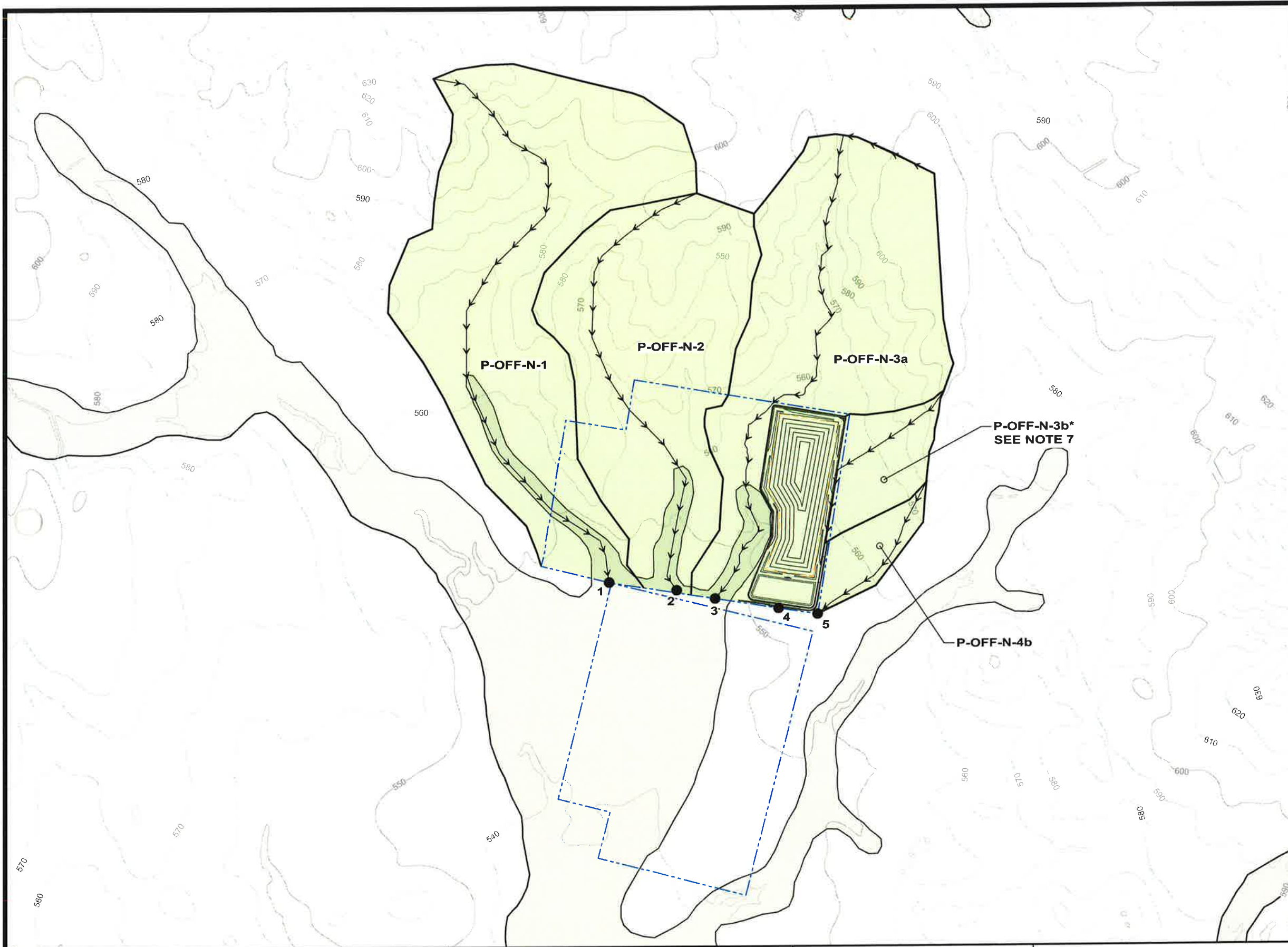
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**PESCADITO ENVIRONMENTAL RESOURCE CENTER**  
**WEBB COUNTY, TEXAS**  
**MSW 2374**  
  
**FACILITY SURFACE WATER DRAINAGE REPORT**  
**POST-DEVELOPMENT CONDITIONS**  
**NORTH AREA - RUN-ON SUBCATCHMENTS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-8</b>
CHECKED BY:	RDS		
APPROVED BY:	MWO		8 OF 18 SHEETS





**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- PROPOSED LANDFILL DEVELOPMENT AREA
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-OFF NORTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	POC-OFF-N-1
2	POC-OFF-N-2
3	POC-OFF-N-3
4	POC-OFF-N-4a
5	POC-OFF-N-4b

**NOTES**

1. EXISTING CONTOURS DEVELOPED FROM SITE AERIAL TOPOGRAPHIC SURVEY BY DALLAS AERIAL SURVEYS ON FEBRUARY 15, 2010 AND FROM CONTOURS ADAPTED FROM TEXAS NATURAL RESOURCE INFORMATION SYSTEM "TEXAS ELEVATION FRAMEWORK (HYPSOGRAPHY)" QUADRANGLES.
2. SHEET FLOW PREDOMINATES ACROSS THE WATERSHED, THERE ARE NO DEFINED CHANNELS.
3. BOUNDARY AND IMPROVEMENT SURVEY DEVELOPED BY MEJIA ENGINEERING COMPANY ON AUGUST 15, 2011 AND JUNE 9, 2014.
4. FOR CLARITY, NOT ALL SITE FEATURES MAY BE SHOWN.
5. THE NEED FOR FLEXIBILITY TO ACCOMMODATE ADJUSTMENTS AND MODIFICATIONS IS ANTICIPATED CONSIDERING THE SIZE, COMPLEXITY, AND LIFE OF THE PROJECT.
6. 100-YEAR FLOODPLAIN FROM FLOOD INSURANCE RATE MAP FOR WEBB COUNTY, TEXAS, MAP NO. 48479C1275C, DATED APRIL 2, 2008. A CLOMR THAT WOULD REMOVE A LARGE AREA OF THE 100-YEAR FLOODPLAIN WITHIN THE PERMIT BOUNDARY WAS APPROVED BY FEMA ON NOVEMBER 21, 2014; HOWEVER, THE CLOMR IMPROVEMENTS HAVE NOT BEEN CONSTRUCTED.
7. P-OFF-N-3b CONTRIBUTES TO BOTH POC-OFF-N-4a (POINT 4) AND POC-OFF-N-3 (POINT 3) THROUGH THE PERIMETER DIVERSION DITCH (SEE III C.2-17 FOR DETAILS.)

REV. NO.	DATE	DESCRIPTION

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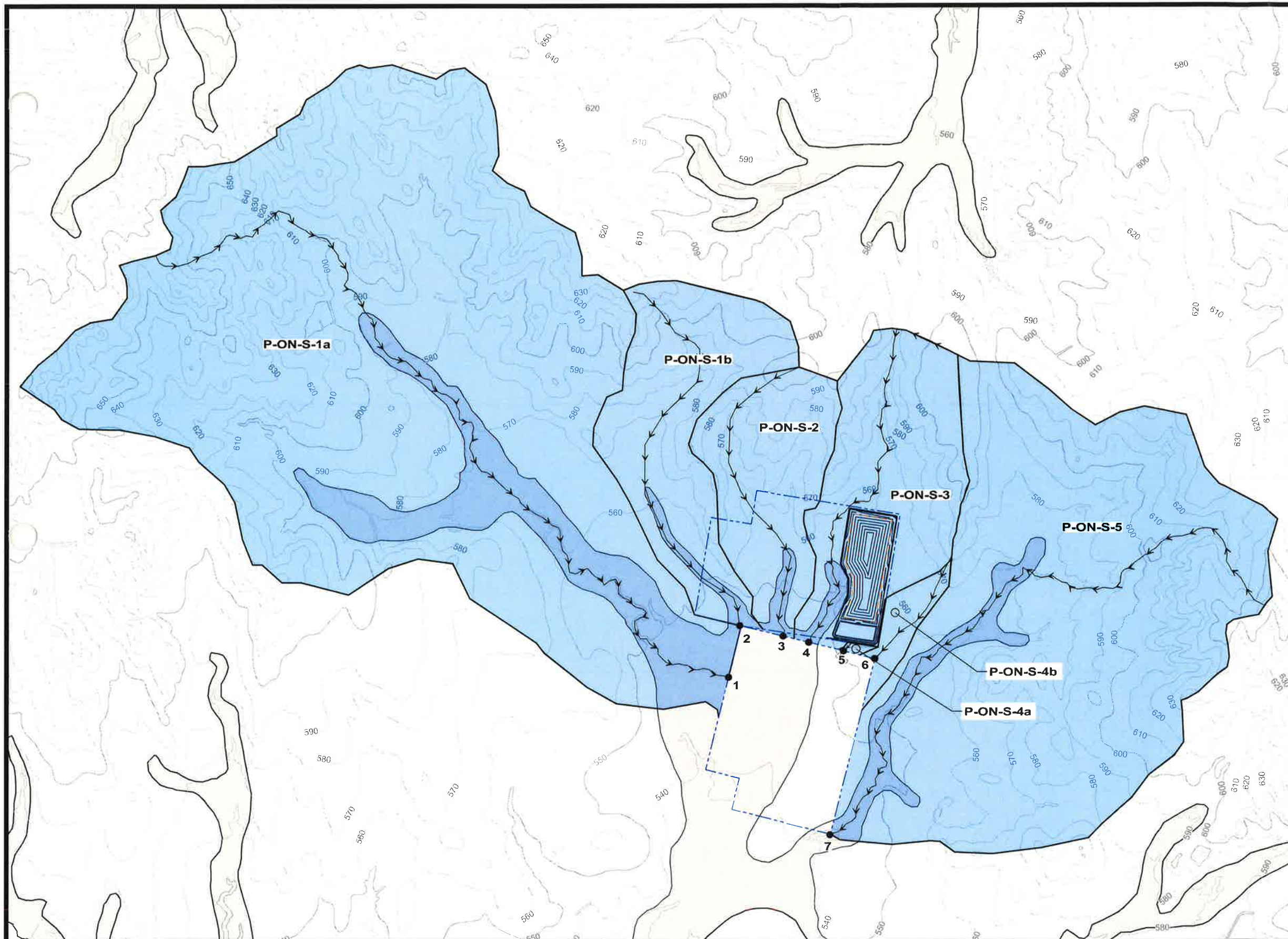
*Michael W. Oden*

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

**FACILITY SURFACE WATER DRAINAGE REPORT**  
**POST-DEVELOPMENT CONDITIONS**  
**NORTH AREA - RUN-OFF SUBCATCHMENTS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-9</b>
CHECKED BY:	RDS		
APPROVED BY:	MWO		9 OF 18 SHEETS





**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- ←←← TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-ON SOUTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	POC-ON-S-1a
2	POC-ON-S-1b
3	POC-ON-S-2
4	POC-ON-S-3
5	POC-ON-S-4a
6	POC-ON-S-4b
7	POC-ON-S-5

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7. A PORTION OF P-ON-S-3 CONTRIBUTES TO POC-ON-S-4a (POINT 5) THROUGH THE PERIMETER DIVERSION DITCH (SEE III C.217 FOR DETAILS).

REV. NO.	DATE	DESCRIPTION



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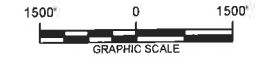
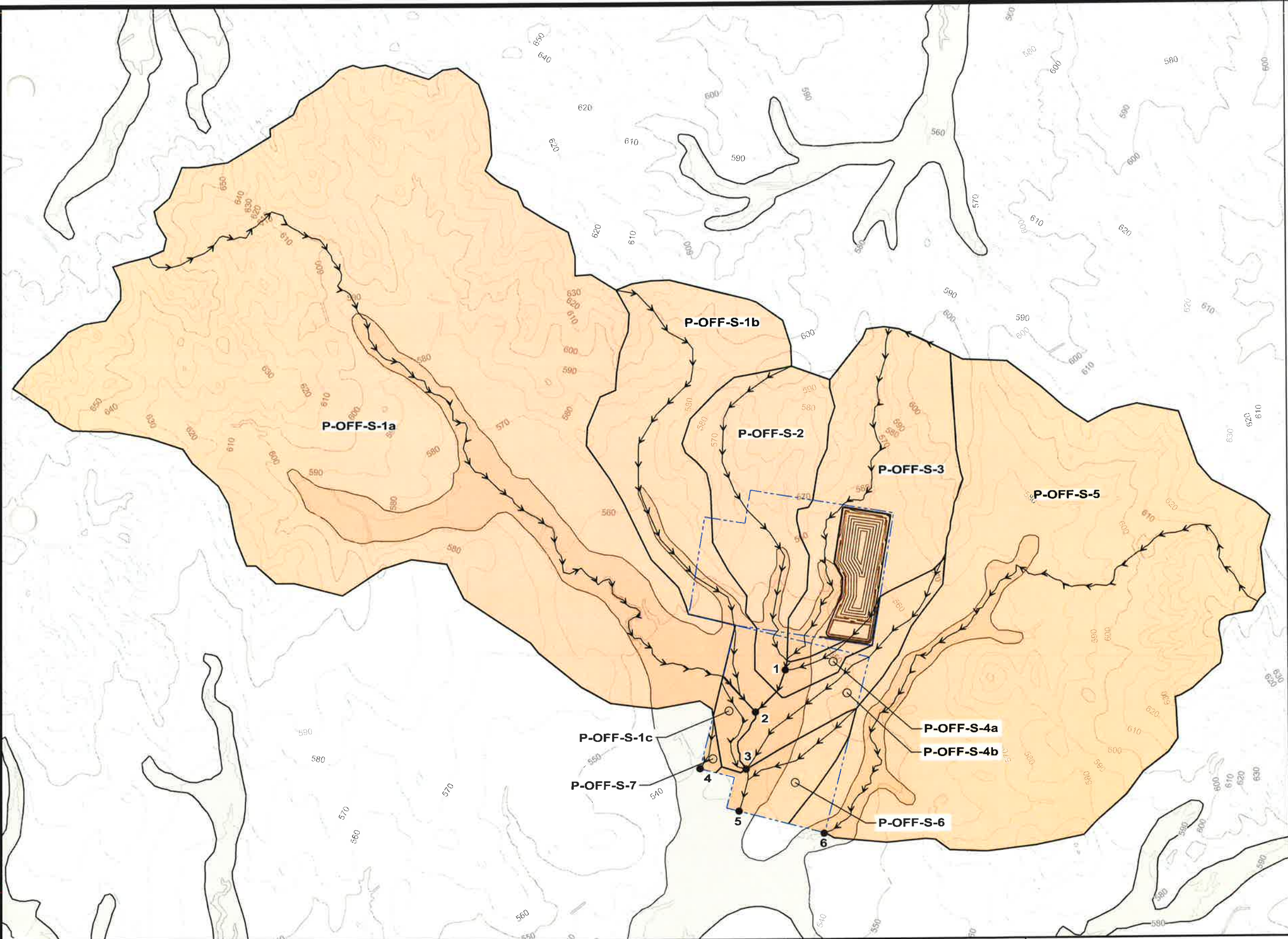


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**WEBB COUNTY, TEXAS**  
**MSW 2374**  
**FACILITY SURFACE WATER DRAINAGE REPORT**  
**POST-DEVELOPMENT CONDITIONS**  
**SOUTH AREA - RUN-ON SUBCATCHMENTS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-10</b>
CHECKED BY:	RDS		
APPROVED BY:	MWO		10 OF 18 SHEETS





**LEGEND**

- PERMIT BOUNDARY
- WASTE UNIT BOUNDARY
- TIME OF CONCENTRATION FLOW PATH
- POINT OF COMPARISON
- RUN-OFF SOUTH AREA
- 100-YEAR FLOODPLAIN (PER FIRM DATED APRIL 2, 2008, SEE NOTE 6)

Point Number	Point Designation
1	CONFLUENCE 1
2	CONFLUENCE 2
3	BURRITO TANK
4	POC-OFF-S-7
5	POC-OFF-S-6
6	POC-OFF-S-5

**NOTES**

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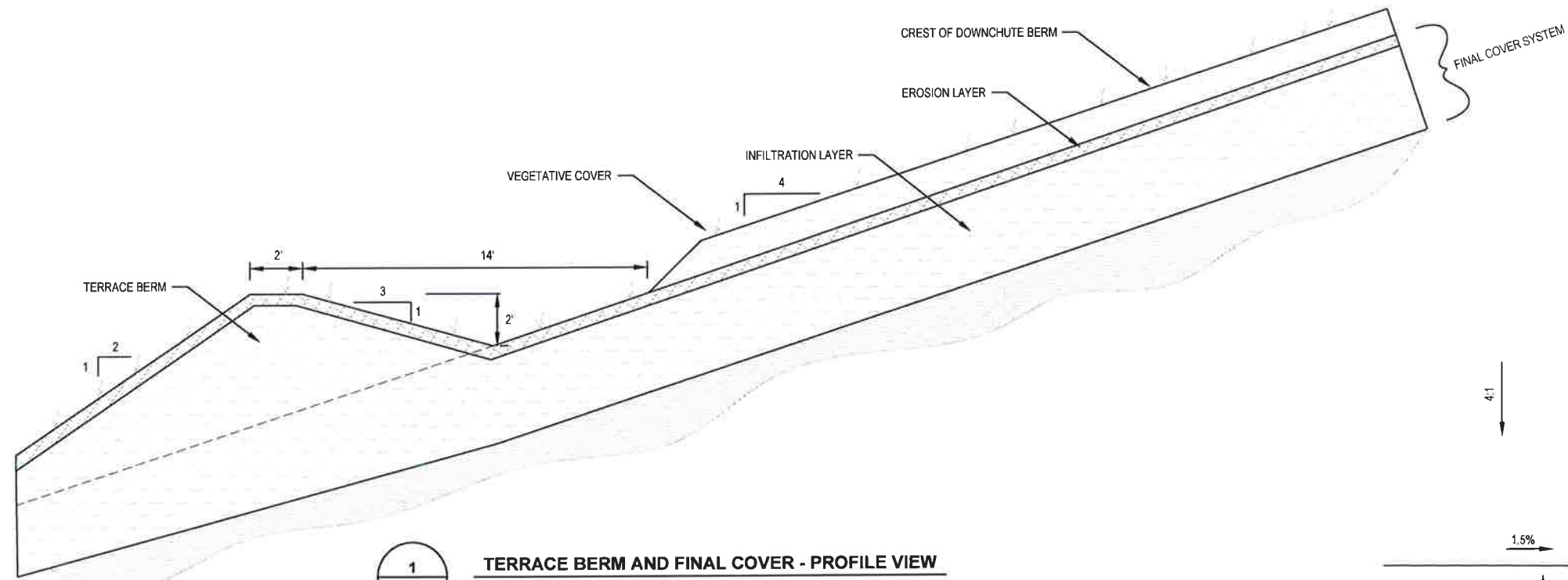
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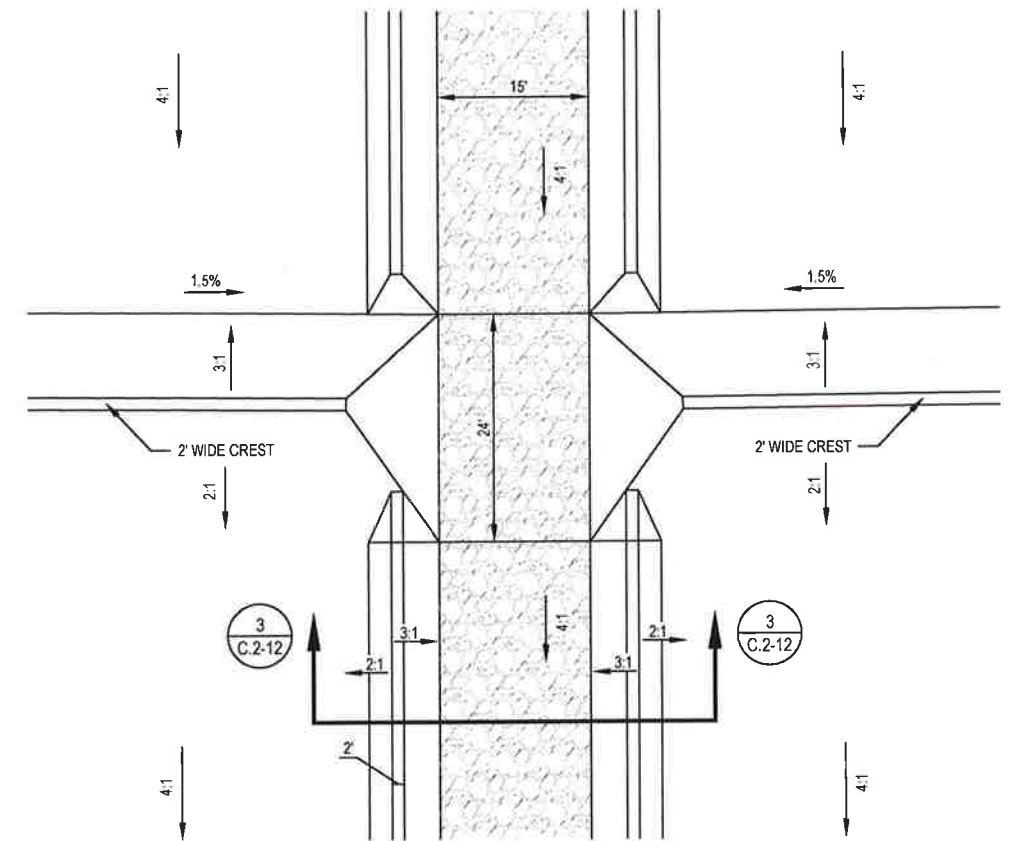
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**WEBB COUNTY, TEXAS**  
**MSW 2374**  
**FACILITY SURFACE WATER DRAINAGE REPORT**  
**POST-DEVELOPMENT CONDITIONS**  
**SOUTH AREA - RUN-OFF SUBCATCHMENTS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	<b>III</b>
DRAWN BY:	NV		<b>C.2-11</b>
CHECKED BY:	RDS		
APPROVED BY:	MWO		11 OF 18 SHEETS

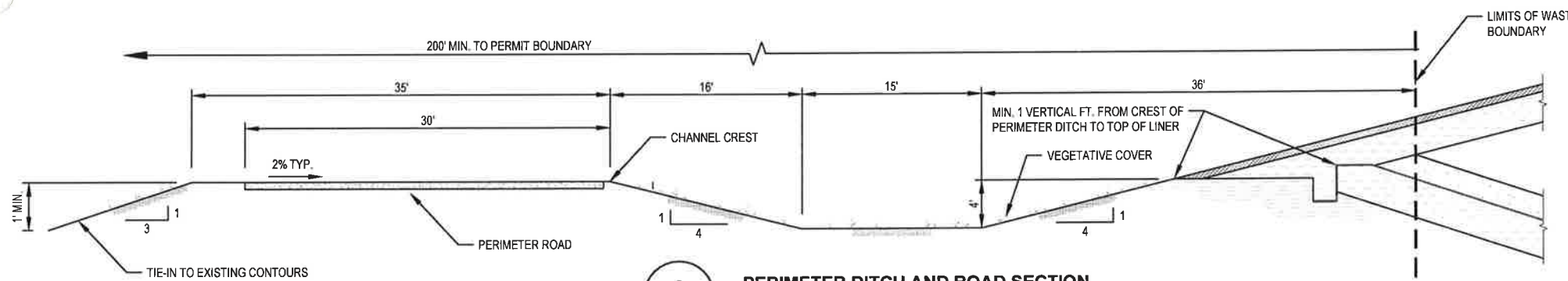




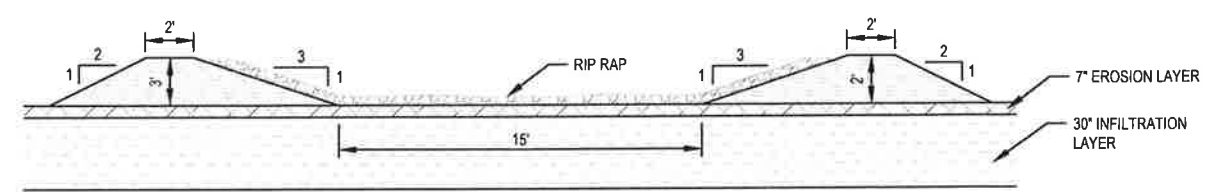
**1**  
C.2-12  
**TERRACE BERM AND FINAL COVER - PROFILE VIEW**  
NOT TO SCALE



**4**  
C.2-12  
**TERRACE BERM AND DOWNCHUTE - PLAN VIEW**  
NOT TO SCALE



**2**  
C.2-12  
**PERIMETER DITCH AND ROAD SECTION**  
NOT TO SCALE



**3**  
C.2-12  
**TYPICAL DOWNCHUTE SECTION**  
NOT TO SCALE

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*Michael W. Oden*

STATE OF TEXAS  
 MICHAEL W. ODEN  
 67165  
 REGISTERED PROFESSIONAL ENGINEER

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

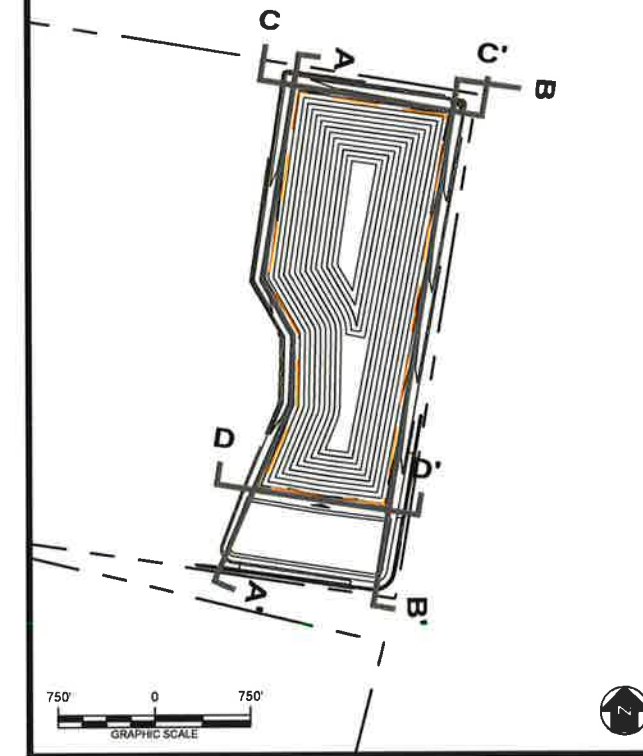
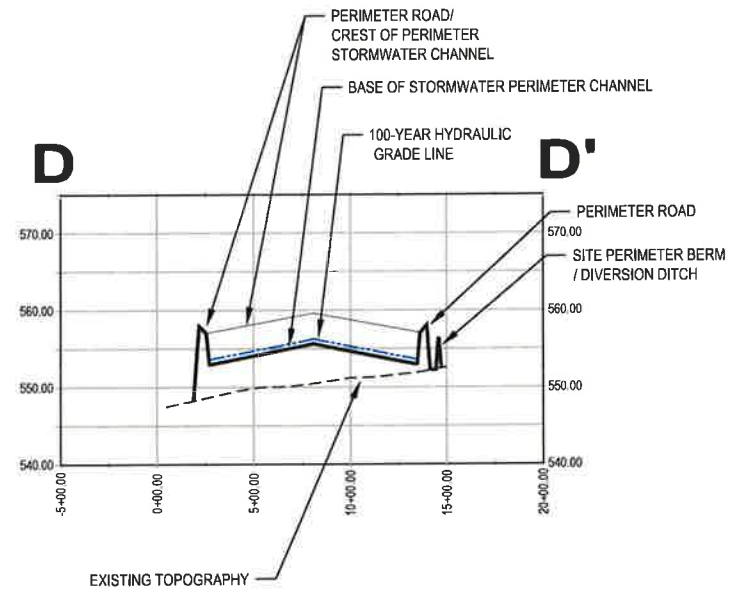
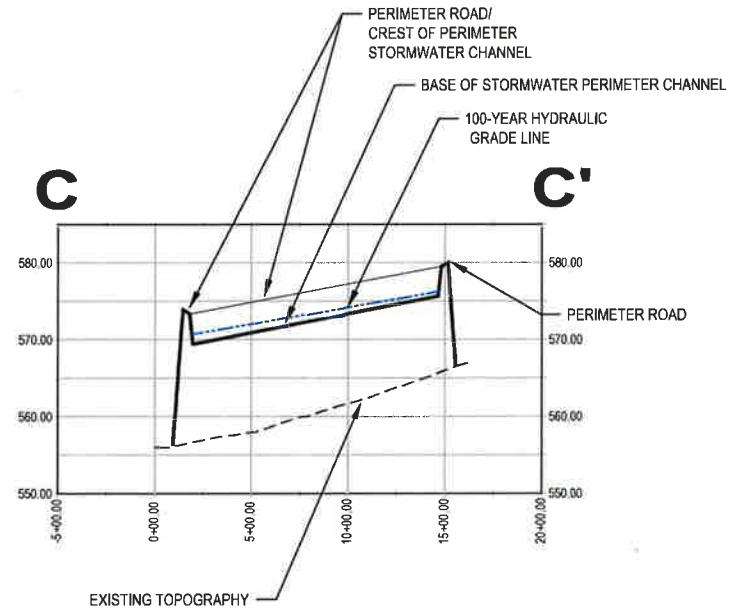
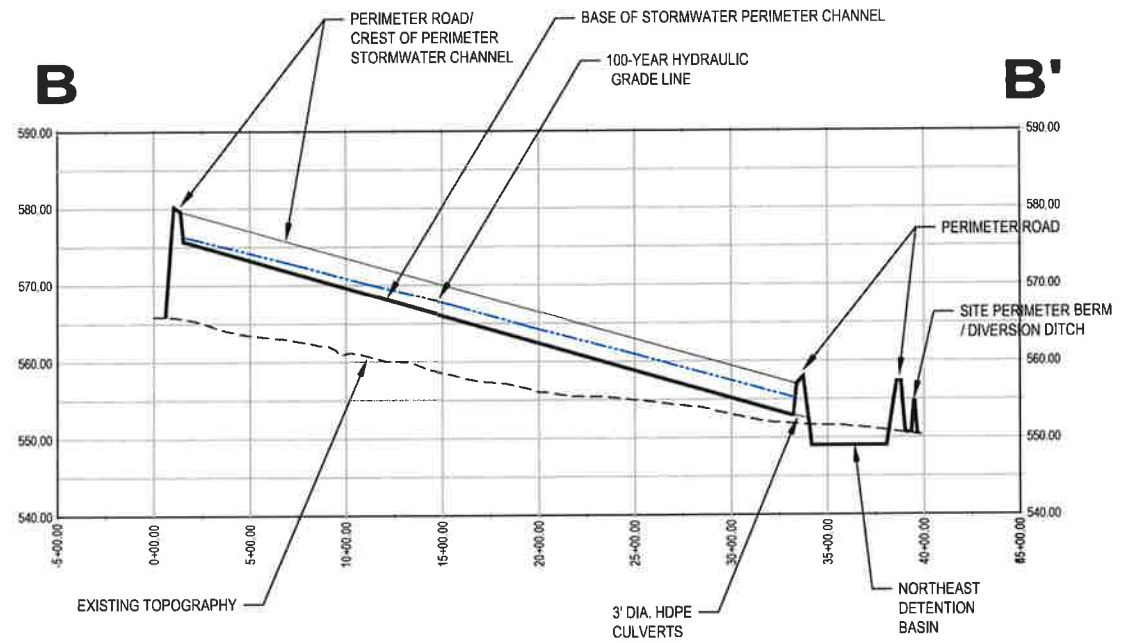
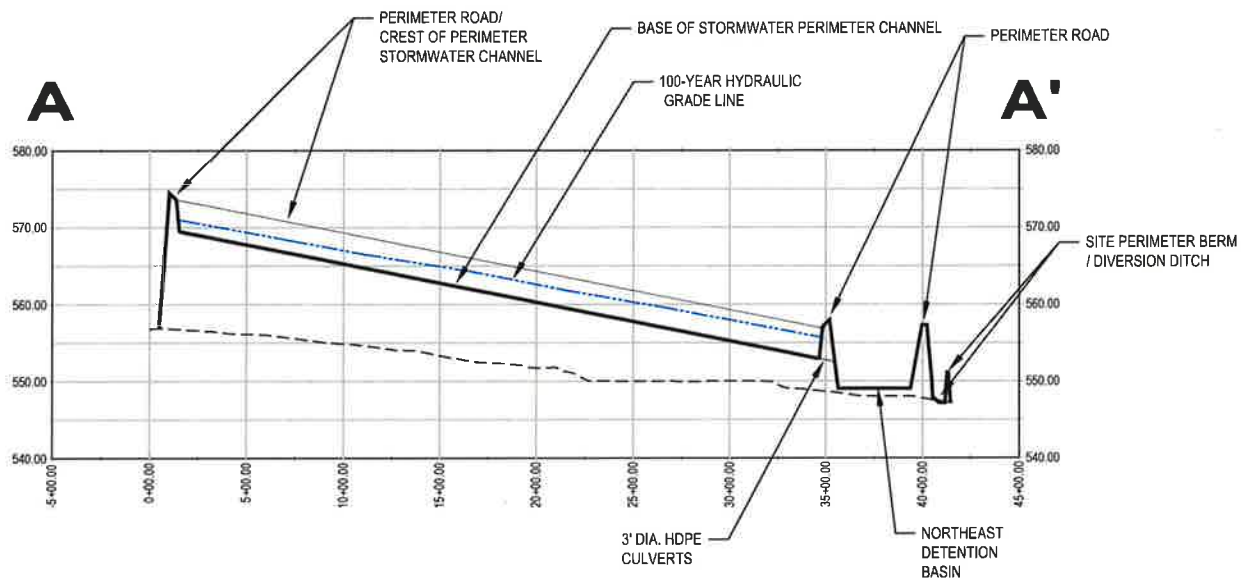
**FACILITY SURFACE WATER DRAINAGE REPORT  
 TERRACE BERM, DOWNCHUTE, AND PERIMETER CHANNEL DETAILS**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-12</b>
CHECKED BY:	RDS		12 OF 18 SHEETS
APPROVED BY:	MWD		









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

VERTICAL: 0 12.5 25  
 HORIZONTAL: 0 500 1000  
 SCALE IN FEET

REV. NO.	DATE	DESCRIPTION



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**MSW 2374**

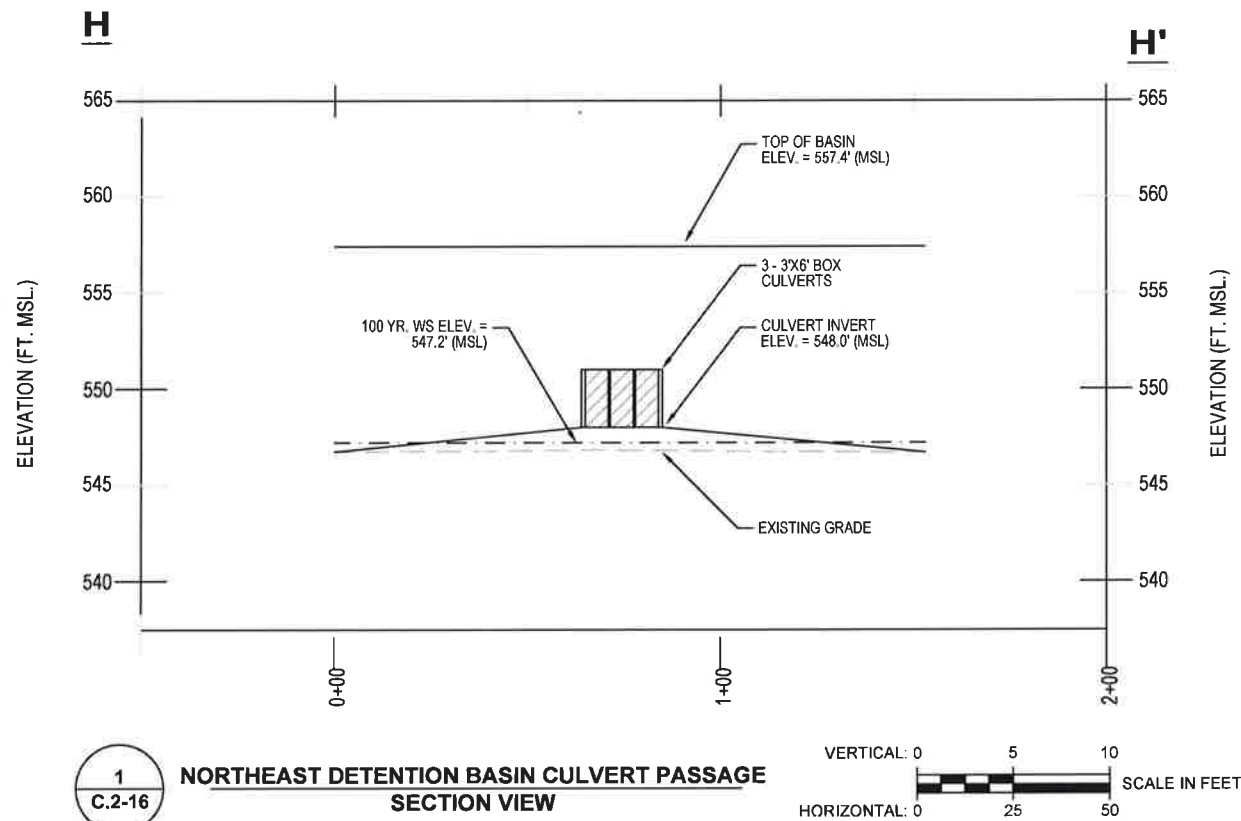
**FACILITY SURFACE WATER DRAINAGE REPORT**  
**PERIMETER CHANNEL PROFILES**

PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-14</b>
CHECKED BY:	RDS		
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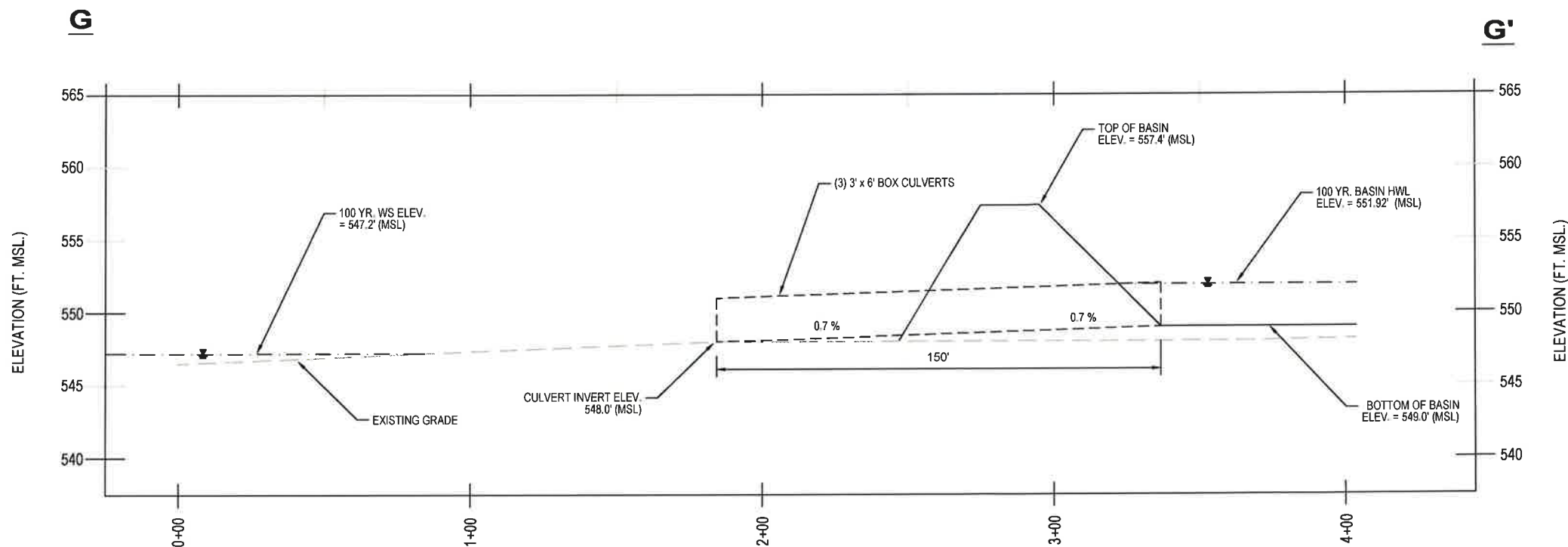
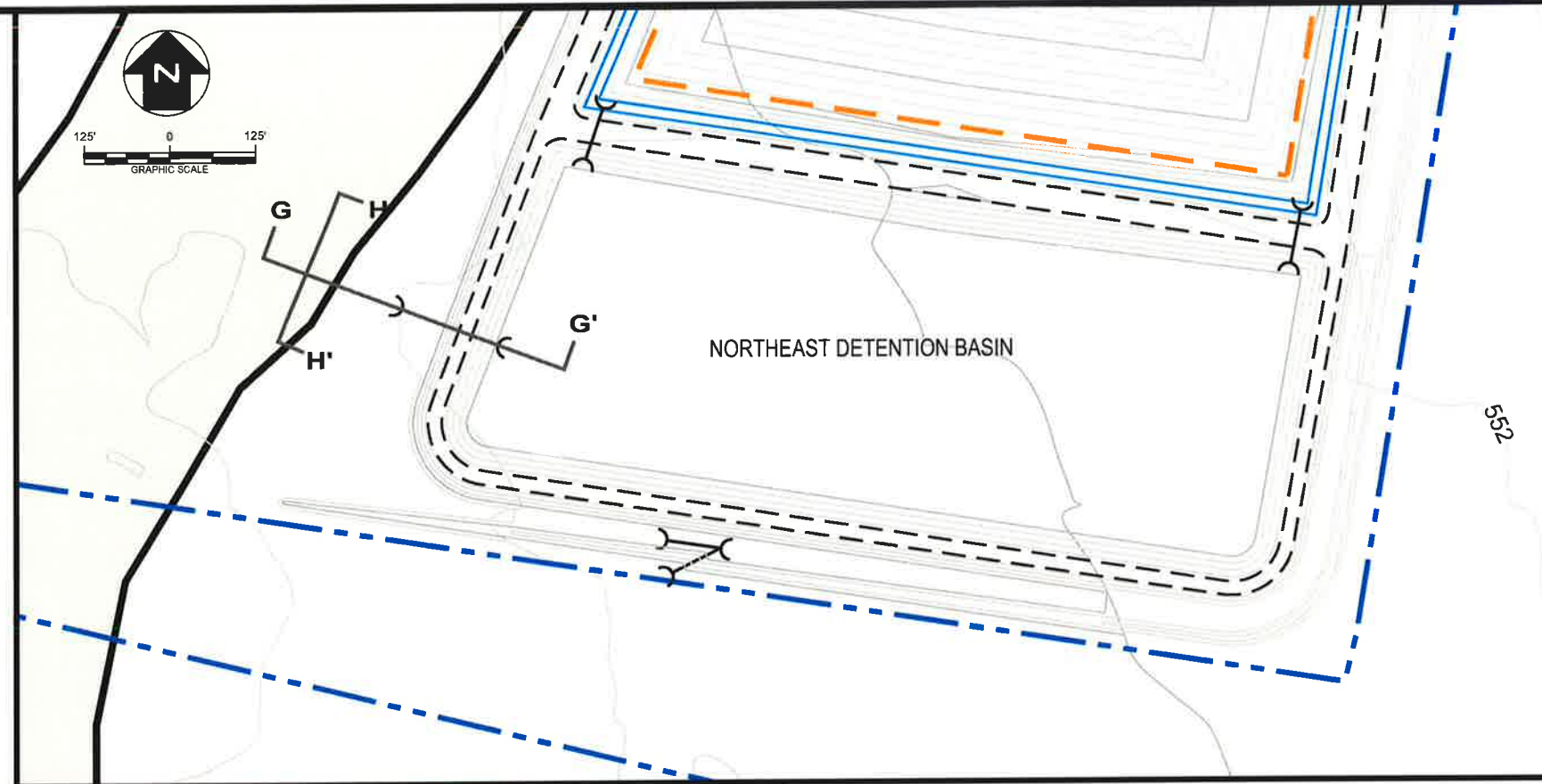




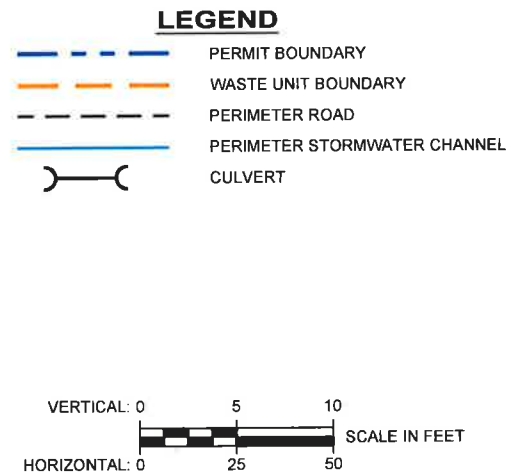




1  
C.2-16  
**NORTHEAST DETENTION BASIN CULVERT PASSAGE SECTION VIEW**



2  
C.2-16  
**NORTHEAST DETENTION BASIN CULVERT PASSAGE PROFILE VIEW**



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STATE OF TEXAS  
 REGISTERED PROFESSIONAL ENGINEER  
 MICHAEL W. ODEN  
 67165

8-15-2017

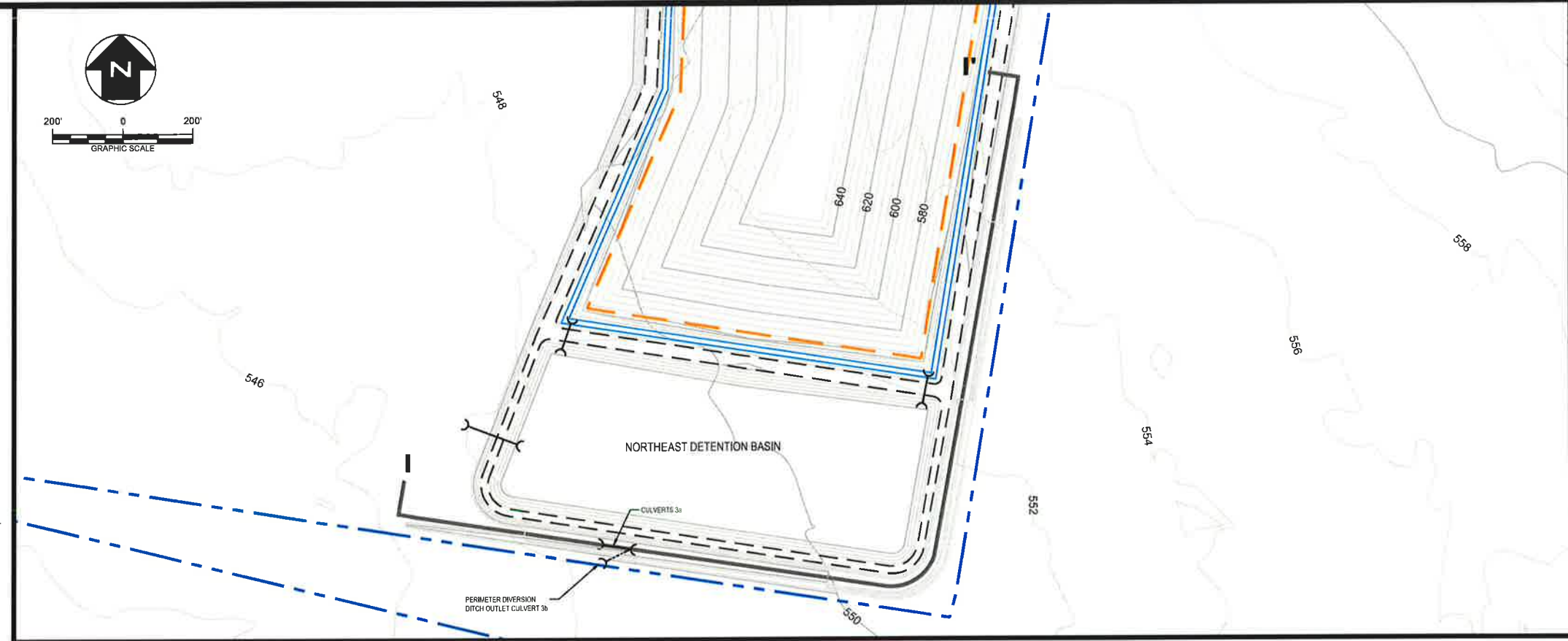
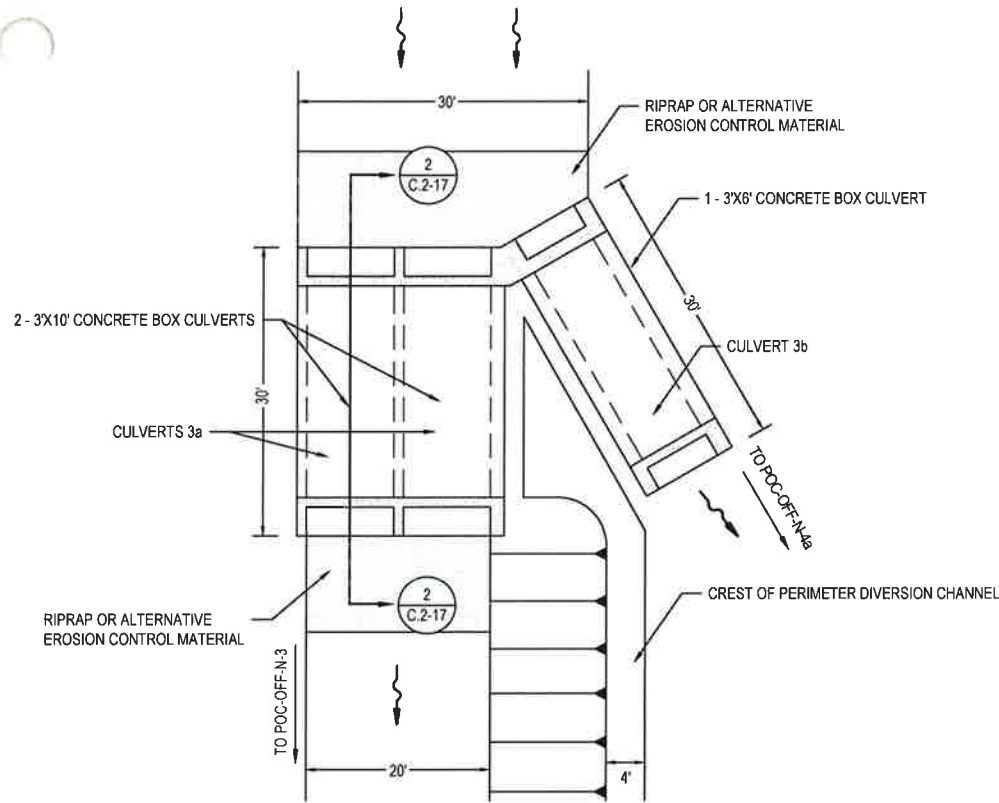
*Michael W. Oden*

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

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

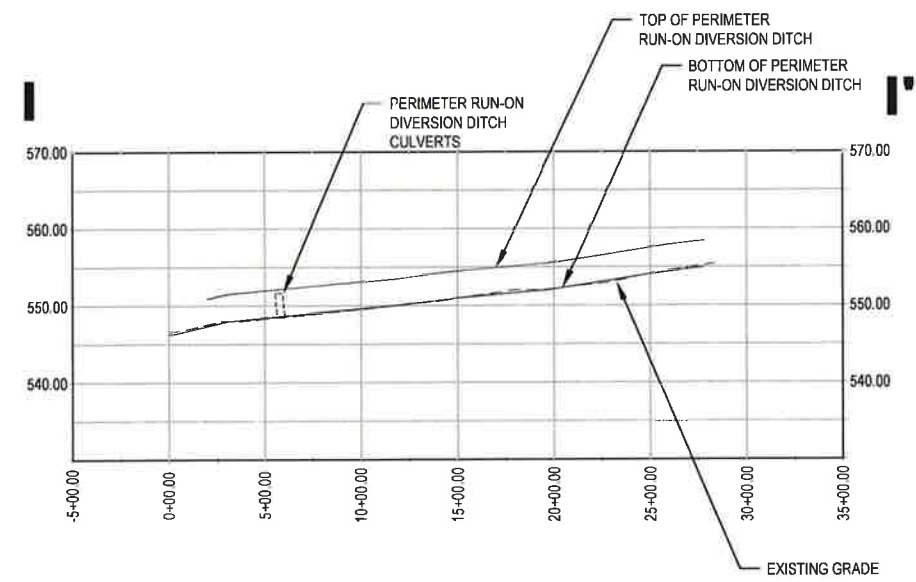
PROJ. NO.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-16</b>
CHECKED BY:	RDS		16 OF 18 SHEETS
APPROVED BY:	MWO		



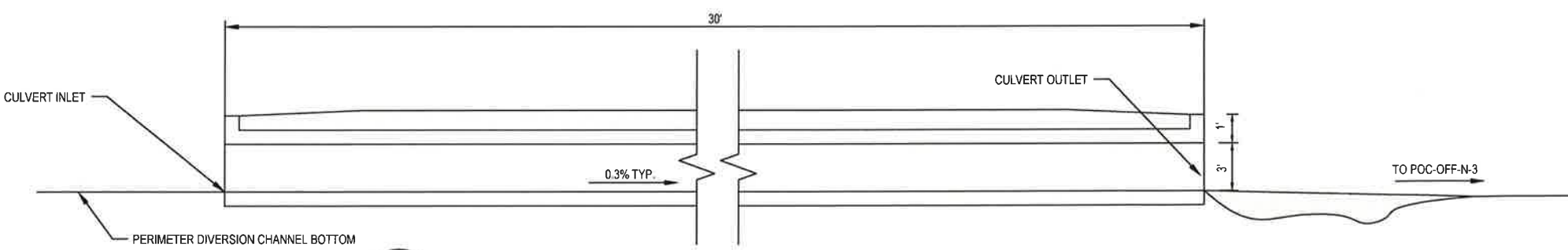


**1**  
C.2-17 PERIMETER RUN-ON DIVERSION DITCH CULVERT PASSAGE - PLAN VIEW  
NOT TO SCALE

- LEGEND**
- PERMIT BOUNDARY
  - WASTE UNIT BOUNDARY
  - PERIMETER ROAD
  - PERIMETER STORMWATER CHANNEL
  - CULVERT



VERTICAL: 0 12.5 25  
HORIZONTAL: 0 500 1000  
SCALE IN FEET



**2**  
C.2-17 PERIMETER RUN-ON DIVERSION DITCH CULVERT PASSAGE - SECTION VIEW  
NOT TO SCALE

REV. NO.	DATE	DESCRIPTION

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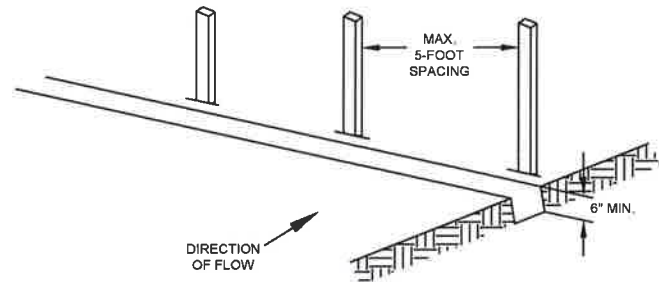
**PESCADITO ENVIRONMENTAL RESOURCE CENTER  
WEBB COUNTY, TEXAS  
MSW 2374**

**FACILITY SURFACE WATER DRAINAGE REPORT  
PERIMETER RUN-ON DIVERSION DITCH PLAN, PROFILE, AND DETAILS**

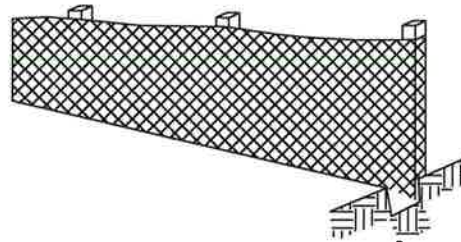
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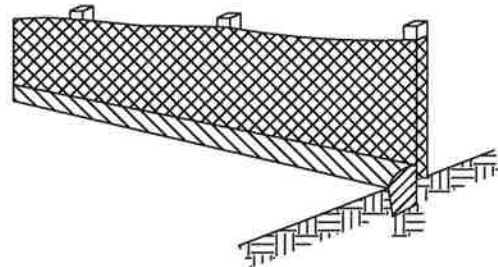
**STEP 1**  
SET POSTS AND EXCAVATE OR SLIT-TRENCH A SIX-INCH DEEP TRENCH UPSLOPE ALONG THE LINE OF THE POST.



**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.

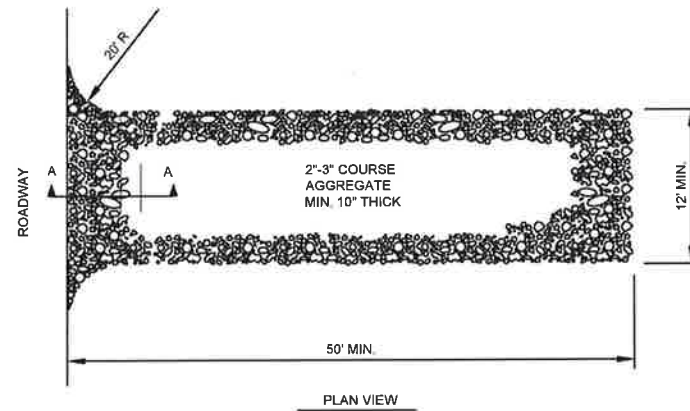
**NOTE:**

- EQUIVALENT DESIGN MAY BE USED AT THE DISCRETION OF THE FACILITY OPERATOR OR CONTRACTOR WITH THE APPROVAL OF THE COA OFFICER.

1  
C.2-18

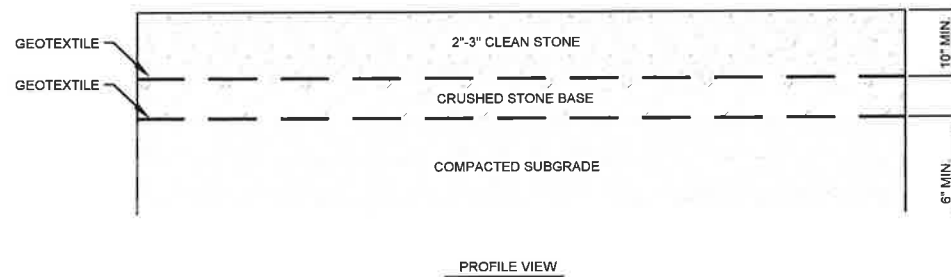
**TYPICAL SILT FENCE DETAIL**

NOT TO SCALE



**NOTES:**

- 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.
- WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
- 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.



2  
C.2-18

**STABILIZED CONSTRUCTION ENTRANCE**

NOT TO SCALE

**SEDIMENTATION AND EROSION CONTROL GENERAL NOTES**

- 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.
- SOIL EROSION AND SEDIMENT CONTROL FEATURES SHALL BE CONSTRUCTED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.
- 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.
- ALL CULVERTS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED, BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.
- ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES WILL BE MAINTAINED AND REPAIRED AS NEEDED.
- 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.:	155145	DATE:	AUGUST 2017
DESIGNED BY:	-	DRAWING NO.:	III
DRAWN BY:	NV		<b>C.2-18</b>
CHECKED BY:	RDS		18 OF 18 SHEETS
APPROVED BY:	MWO		

REV. NO.	DATE	DESCRIPTION