

**NAVFAC SW CONTRACT NO. N62473-07-D-3211  
CTO NO. 0008**

**FINAL**

**FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE  
INSPECTION AND MAINTENANCE REPORT**

**August 8, 2012**

**INSTALLATION RESTORATION PROGRAM SITE 7 AREA 1  
(FORMER STATION LANDFILL)**

**NAVAL WEAPONS STATION SEAL BEACH  
SEAL BEACH, CALIFORNIA**

**DCN: ECSD-3211-0008-0011**

Naval Facilities Engineering Command Southwest  
Contracts Department  
1220 Pacific Highway, Building 127, Room 112  
San Diego, California 92132-5190

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**NAVAL WEAPONS STATION SEAL BEACH**  
**SEAL BEACH, CALIFORNIA**

**DCN: ECSD-3211-0008-0011**

Prepared by:



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## ABBREVIATIONS AND ACRONYMS

bgs	below ground surface
DON	Department of the Navy
IRP	Installation Restoration Program
NAVWPNSTA	Naval Weapons Station
NTCRA	non-time-critical removal action
PCIMP	Post-Closure Inspection and Maintenance Plan
RWQCB	Regional Water Quality Control Board
TtEC	Tetra Tech EC, Inc.

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## 1.0 INTRODUCTION

This report describes the results and findings of the fall 2011 and winter 2012 annual post-closure inspection activities conducted at Installation Restoration Program (IRP) Site 7 Area 1, also referred to as the Former Station Landfill, located at Naval Weapons Station (NAVWPNSTA) Seal Beach in Seal Beach, California (Figures 1-1 and 1-2).

The purpose of this report is to document the condition of the landfill cover and access road, any changes to the landfill cover such as settlement or erosion, changes to the surface water management system, condition of the vegetative cover, and any maintenance activities that were completed during the fall 2011 and winter 2012 inspection events.

Tetra Tech EC, Inc. (TtEC) conducted the post-closure inspections described in this report under the Department of the Navy's (DON's) directive and under Remedial Action Contract Number N62473-07-D-3211. The inspections were conducted in accordance with the Post-Closeout Inspection and Maintenance Plan (PCIMP) (TtFW 2004a). The PCIMP outlines and describes the procedures and requirements for post-closure inspections and maintenance activities for IRP Site 7 Area 1.

The post-closure inspection conducted on October 4, 2011, served as the annual pre-rainy season landfill cover inspection for fall 2011. The inspections conducted on November 23, 2011, and March 19, 2012, served as periodic inspections following heavy rain events, and the final inspection conducted on June 6, 2012, served as the annual inspection after the 2011 to 2012 rainy season ended. This report describes the inspections conducted, documents the inspection findings, and provides recommendations.

This report also documents the condition of the cover at the time of the inspections to ensure that 1) the soil cover is functioning adequately to isolate the buried waste from the surface; 2) the cover continues to provide adequate drainage, thus minimizing its erosion; and 3) any settlement and subsidence of the cover are not jeopardizing the cover integrity. The inspections conducted during this reporting period focused on the functional aspects of the cover. Therefore, the soil cover was inspected to document whether it is intact and free of major cracking (defined as cracks 2 inches or wider, deeper than 12 inches, and longer than 20 feet). The cover was also inspected for soil erosion (deeper than 6 inches) and surface depressions (defined as deeper than 6 inches) that could cause significant ponding or other unusual surface conditions. A visual inspection of surface drainage slopes was also conducted. The vegetative cover was inspected to document any soil losses caused by precipitation, wind, and lack of vegetative cover, and to identify the causes of erosion problem areas. All inspections were conducted by, or under the supervision of, a state of California registered civil engineer.

The inspections were conducted as part of the proposed post-closeout monitoring described in the PCIMP (TtFW 2004a). Results of the previous year's inspection and maintenance activities are documented in the Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection and Maintenance Report (TtEC 2011).

The pertinent PCIMP (TtFW 2004a) inspection forms completed during each inspection are attached as Appendix A. Included with the forms for each of the inspection events is a figure (Figure A-1) depicting the areas covered with vegetation, as noted during each event, and photographs taken during each inspection event.

This report will be kept on file with the NAVWPNSTA Seal Beach Administration Records. Copies will also be kept in the Naval Facilities Engineering Command Southwest Administrative Record files.

## **1.1 SITE HISTORY AND BACKGROUND**

This section describes the facility and site locations and provides a description of the past history of operations at IRP Site 7, which consists of six distinctive areas (designated as Areas 1 through 6), along with a brief description of the nature and extent of the contamination at the site.

IRP Site 7 totals approximately 33 acres located near the southern boundary of NAVWPNSTA Seal Beach and at the eastern boundary of the Seal Beach National Wildlife Refuge. Landfill activities were reportedly conducted at the site from approximately 1955 to 1973. A large variety of wastes generated by NAVWPNSTA Seal Beach during the period of active landfilling may have been buried in trenches at IRP Site 7. Almost any type of waste generated on the station may have been disposed of at IRP Site 7. The major types of waste reportedly disposed of in the landfill include small, mostly empty containers that once held paints, petroleum products, various solvents, used rags, batteries, asbestos, and inert construction debris.

IRP Site 7 Area 1 covers approximately 10 acres. Most of the waste disposal and landfilling activities took place in IRP Site 7 Area 1 in a series of unlined trenches lying in an east-west orientation (Naval Energy and Environmental Support Activity 1985). Exploration during a supplemental characterization indicated that the depth of the debris varied between 5.5 and 9 feet below ground surface (bgs), with an average depth of 6.4 feet bgs (SWDIV 1999).

A non-time-critical removal action (NTCRA) was completed at IRP Site 7 in April 2004. The intent of the NTCRA was to minimize any potential threats to human health and the surrounding environment. The removal action decision for IRP Site 7 was documented in the joint Final Action Memorandum/Non-Time-Critical Remedial Action Plan (DON 2004).

Under the DON's directive, TtEC implemented the removal action at the site under Remedial Action Contract Number N68711-98-D-5713. The removal action was conducted in accordance

with the Comprehensive Environmental Response, Compensation, and Liability Act and National Oil and Hazardous Substances Pollution Contingency Plan requirements.

The removal action at IRP Site 7 Area 1 involved repair to the existing soil cover by placing additional cover in areas where waste was exposed or where cover thickness was deficient. The intent of the removal action at IRP Site 7 Area 1 was to repair the existing landfill soil cover and ensure a minimum of 2 feet of soil cover over the buried waste, thus preventing direct contact with buried waste and eliminating the potential migration of contamination through windblown dust, infiltration, and surface runoff. Removal action at the remaining areas of IRP Site 7 involved removal of buried and surface debris. The removal action at IRP Site 7 (Areas 1 through 6) is documented in the Final Project Closeout Report (TtFW 2004b). Only IRP Site 7 Area 1 (Former Station Landfill) requires post-closure inspection and maintenance.

A PCIMP (TtFW 2004a) was developed following the completion of the removal action to describe the required post-closure inspection and maintenance activities for IRP Site 7 Area 1.

Based on the recommendations made in the Final 2005 First Semiannual Post-Closure Inspection and Maintenance Report (TtEC 2005) following the March 2005 inspections, landfill cover maintenance was conducted to repair several settlement and ponding areas at the western portion of the landfill, and to reseed the western portion following the grading and repairs of the settlement areas. Landfill maintenance was conducted in September 2005. The second 2005 semiannual post-closure inspection was conducted in October and November 2005 (TtEC 2006a). Subsequent third semiannual inspection and maintenance activities were conducted in March 2006, the results of which were discussed and documented in the Final 2006 First Semiannual Post-Closure Inspection and Maintenance Report (TtEC 2006b). Results of the 2006 report indicated that no areas needed repairs or corrective action and that the landfill cover grading provided adequate sheet flow drainage to minimize ponding. Landfill post-closure inspections and maintenance activities were temporarily suspended after the March 2006 event and resumed with the 2008/2009 season inspections (TtEC 2009). Previous reports were submitted semiannually, but at a meeting between the DON and the Regional Water Quality Control Board (RWQCB) held on January 12, 2010, a decision was made to submit the future reports annually. Therefore, inspections conducted during the fall 2009 and winter 2010 season, and during the fall 2010 and winter 2011 season, were documented in annual reports (TtEC 2010 and TtEC 2011).

## **1.2 SCOPE OF THE FALL 2011 TO WINTER 2012 INSPECTIONS**

This report addresses landfill cover maintenance, cover inspections, vegetation inspections, drainage inspections, and site restoration activities conducted for the fall 2011 and winter 2012 rainy season.

The DON previously had a groundwater monitoring program for IRP Site 7 to monitor the status and condition of groundwater at the site. Results of the Third Annual Groundwater Monitoring Report for IR Sites 5 & 7 (BEI 2007) recommended discontinuing groundwater monitoring based on findings of a fate and transport evaluation. The Department of Toxic Substances Control and the RWQCB concurred with the findings of this report and the recommendation to discontinue groundwater sampling in their letters dated August 1 and July 12, 2007, respectively (DTSC 2007, RWQCB 2007).

IRP Site 7 Area 1 also does not have a landfill gas control, recovery, or emissions and migration monitoring system. Previous investigations conducted at IRP Site 7 Area 1 have indicated there is insignificant landfill gas at the site (CH2M Hill 2002). No surface or subsurface emissions of landfill gas, including methane, have been detected at IRP Site 7 Area 1.

In addition, IRP Site 7 Area 1 does not have a liquid management system, and none is planned. The site neither produces any liquids associated with collection, nor does it have monitoring and disposal of landfill gas condensate, groundwater seepage, a leachate collection system, groundwater extraction wells, or groundwater storage tanks and sumps.

### **1.3 LAND-USE CONTROL**

No structures or buildings are on the site and none are planned for the future. No regular station activities take place at IRP Site 7 Area 1. Future developments or agricultural activities on the landfill are highly unlikely. The future land-use at this site is open space, and the site will continue to be maintained as such.

## **2.0 SOIL COVER INSPECTION AND MAINTENANCE**

This section describes the landfill soil cover inspections conducted during the fall 2011 to winter 2012 reporting period. The inspection and field observation results were evaluated relative to the performance standards and requirements provided in the PCIMP (TtFW 2004a), and were recorded on inspection Forms 101 and 102 for each inspection (Appendix A).

The purpose and primary function of the soil cover are to isolate the buried waste from the surface, promote drainage to minimize erosion or abrasion of the cover, and accommodate settlement and subsidence so that the cover integrity is maintained. To perform these functions, the soil should remain intact and free of major cracking (defined as cracks 2 inches or wider, deeper than 12 inches, and longer than 20 feet), erosion (deeper than 6 inches), and surface depressions (defined as deeper than 6 inches) that could cause relatively significant ponding.

### **2.1 SOIL COVER INSPECTION**

Routine visual inspection of the soil cover was conducted in October 2011, November 2011, March 2012, and June 2012. The following inspection procedures were followed in accordance with the PCIMP:

- Inspection and observation for any surface cracking, ponding, localized depressions, or unusual surface conditions
- Inspection and observation of all surface drainage swales and slopes (all slopes and drainage areas were visually inspected and documented on Forms 101 and 102 for each inspection [Appendix A]).

### **2.2 SUMMARY OF FIELD OBSERVATIONS**

During the inspections, a lack of complete vegetation cover, some minor erosion (less than 2 inches deep and less than 6 inches wide), some shallow depressions (less than 4 inches deep), and some signs of burrowing rodents (likely gophers) were observed in the western portion of the landfill (Figure 2-1). No cover failures resulting from stormwater runoff, and no waste exposure due to lack of soil cover, cracks, unstable cover, or burrowing rodents, were observed during the inspections. Overall, the landfill cover is stable. The areas of vegetation in the poorly vegetated western portion of the landfill did not appear to significantly increase in size during the reporting period, but the density of plants within the vegetated areas did appear to increase.

## 2.3 SOIL COVER FINDINGS AND RECOMMENDATIONS

No unstable or significant surface depressions, cracks, major soil losses, or excessive rodent burrowing were observed during the inspections completed for the reporting period. The few areas impacted by burrowing rodents did not appear to have increased in size during the reporting period, which suggests that local coyotes or other predators may be helping to control the rodent population. It was recommended that traps or predatory bird perches be considered (see cover inspection Forms 101 in Appendix A); however, it is believed that vector controls are not required at this time.

The eastern two-thirds of the landfill contains good vegetative soil cover and was found to satisfy the requirements of the PCIMP (TtFW 2004a) and project specifications. The western third of the landfill cover does not have a complete vegetation ground cover. However, significant soil erosion due to the lack of a complete vegetation cover was not evident during the inspection period. Vegetation inspection and maintenance are discussed in more detail in Section 3.0.

Based on the overall intact nature of the soil cover, no recommendations for additional work are proposed at this time. It is, however, recommended that the inspection program continue to monitor burrowing rodents and minor soil erosion.

### **3.0 VEGETATIVE COVER INSPECTION AND MAINTENANCE**

The purpose and the primary function of the vegetative cover are to provide erosion control and visual enhancement across the landfill. The vegetative cover at IRP Site 7 Area 1 was designed to evolve into a natural vegetation community, which would enable the vegetation to blend with the natural character of adjacent open spaces. The vegetative cover is intended to turn green during the rainy season and is expected to fade to brown during the dry season. The plants will need to survive on seasonal rainfall. This section reviews the vegetative cover inspection, discusses the findings, and provides recommendations, if needed. The vegetative cover inspection results are included on inspection Form 103 for each inspection (Appendix A).

The Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection and Maintenance Report (TtEC 2011) included recommendations to continue the biweekly watering program that was started for the small plants that were planted in six grids, in March 2011, in the western portion of the landfill (TtEC 2011). As recommended, the biweekly watering program was continued and was subsequently increased to weekly during the months of August, September, and the first week of October 2011, to help the vegetation survive the summer.

#### **3.1 PROTECTIVE VEGETATIVE COVER INSPECTION**

During the fall 2011 to winter 2012 inspections, the overall condition of the vegetative growth on the eastern portion of the landfill cover (approximately 8 acres) was observed to be satisfactory. The western portion of the landfill has areas of sparse vegetative growth as shown on Figure 2-1. The lack of vegetation in the western portion (approximately 2 acres) is possibly a result of the relatively elevated salinity levels in soil inhibiting plant growth.

Form 103 in Appendix A, completed for each inspection conducted for this reporting period, indicated there are no significant issues with vegetation loss due to soil erosion, non-native plants, shrubs, fire hazards, or dead vegetation. The only observation is the lack of complete vegetative cover at the western part of the landfill.

#### **3.2 SUMMARY OF FIELD OBSERVATIONS**

The majority of the landfill (the central and eastern portions) is adequately covered with suitable vegetation. The western portion of the landfill, however, lacks complete vegetation coverage. The satisfactory condition of vegetation in the central and eastern portions of the landfill may be attributed to the slightly higher surface elevations in those areas possibly allowing for better drainage. The drainage may help reduce potential salt buildup in the soil related to the tidal pond located immediately south of the site (Figure 2-1). The western portion of the cover does support some salt marsh plants, and there appears to be an overall slow increase in the density of plants within the areas that are vegetated.

In September 2005 (TtEC 2006a), the western portion of the landfill cover was regraded and reseeded. Assuming the area that was regraded and reseeded had zero percent vegetation in September 2005, it is estimated that approximately 53 percent of that area is now covered with adequate vegetation (Figure 2-1).

### **3.3 VEGETATIVE COVER RECOMMENDATIONS**

The central and eastern portions of the landfill cover have good vegetative growth, and, as described above, the western portion of the cover is relatively sparsely vegetated. However, the landfill cover is considered to be stable and intact, and the minor soil erosion that occurs during heavy rain events appears to be adequately mitigated with jute mesh and straw wattles. The lack of complete vegetation cover on the western portion of the landfill is not considered serious, and no recommendations for additional work (additional plantings, etc.) are proposed at this time.

## **4.0 SURFACE WATER MANAGEMENT INSPECTION AND MAINTENANCE**

This section provides the scope, inspection summary, and evaluation of surface water management across the landfill cover. The inspection results are included on inspection Form 102 for each inspection (Appendix A).

The Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection and Maintenance Report (TtEC 2011) included recommendations that some minor maintenance of the cover be completed to avoid potential future loss of soil. The recommendations included adding jute mesh to areas showing early signs of shallow soil erosion. As recommended, a total of 275 feet of jute mesh (4 feet wide), along with 75 feet of straw wattle material, was added to the western portion of the landfill cover prior to the fall 2011 to winter 2012 inspection period. The maintenance activities that were completed are documented on Form 104 for the October 4, 2011 inspection (Appendix A).

### **4.1 SURFACE WATER MANAGEMENT INSPECTION**

The ability of the landfill cover to continue to manage surface water runoff was assessed during the fall 2011 to winter 2012 inspections, which included the following:

- Visual inspection of surface drainage swales and slopes
- Visual inspection of the cover system for any signs of soil erosion
- Inspection and observation of surface drainage conditions

The primary objective of the inspections was to identify any failure of the surface drainage and sheet flow system, focusing primarily on any areas of soil erosion, wet or saturated cover soils, ponding, or areas where there is a potential for increased infiltration into the landfill.

### **4.2 SUMMARY OF FIELD OBSERVATIONS**

Relatively minor ponding (less than 4 inches deep) was observed at some areas along the western portion of the landfill during the November 2011 and March 2012 inspections (Appendix A), which were completed after relatively heavy rainfall events. During the November 2011 inspection, some shallow flow lines were beginning to form (less than 2 inches deep) along the western edge of the cover, and during the March 2012 inspection, a small gap (8 inches wide) was observed in the northernmost straw wattle. Additional jute mesh was added to the western edge of the cover, and the gap in the northernmost straw wattle was repaired.

Overall, the landfill cover has positive drainage that allows precipitation to drain to the south. Only minor soil erosion (less than 2 inches deep and less than 6 inches wide) was observed in a few small areas along the western portion of the cover. Observations for each inspection are documented on Form 102 in Appendix A.

The eastern two-thirds of the landfill cover did not show any evidence of soil loss, which indicates that the vegetative cover in this area has effectively inhibited soil erosion. The western third of the landfill cover continues to have relatively sparse vegetative ground cover and minor soil erosion; however, no vegetation washout or significant soil erosion was observed. In general, the cover provides adequate positive drainage, with the exception of a few minor ponding areas mentioned above.

### **4.3 FINDINGS AND RECOMMENDATIONS**

No major washouts of the landfill cover or waste exposure was observed during any of the inspections completed between October 2011 and June 2012. No significant construction activities (surface regrading, etc.) are required. The overall surface water drainage system complies with the landfill cover system performance criteria described in the PCIMP (TtFW 2004a). The existing jute mesh and straw wattle material are located in areas identified during the inspections as showing early signs of minor surface soil erosion. No additional jute mesh or straw wattles are recommended at this time.

## **5.0 LANDFILL SETTLEMENT INSPECTION**

This section provides the scope, data summary, and evaluation of landfill cover settlement.

### **5.1 SURVEY SCOPE**

The scope of this inspection is to identify and address settlement of the landfill as it relates to the overall performance of the cover system.

### **5.2 SUMMARY OF FIELD OBSERVATIONS**

Visual site inspections of settlement of the landfill cover were completed during each site visit. Some minor depressions (less than 4 inches deep) were observed along the western portion of the cover after rain events when these minor depressions typically became small, shallow ponds. The areas of ponding are indicated on the figures in Appendix A for the November 2011 and March 2012 inspections.

No major earthquakes, and no significant sloughing, cracks, or cover deformation occurred during this reporting period that would require a topographic survey by a licensed land surveyor.

### **5.3 FINDINGS AND RECOMMENDATIONS**

Based on the inspections completed during this reporting period, settlement of the landfill cover is considered minor. Surface water runoff is not significantly impacted, and surface regrading is not necessary at this time.

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## **6.0 ACCESS ROAD INSPECTION**

This section describes and addresses observations made during the fall 2011 and winter 2012 inspections of the existing road accessing the landfill cover.

### **6.1 SUMMARY OF ACCESS ROAD OBSERVATIONS**

The unpaved access road along the western side of the landfill was found to be well-graded and in good condition. The access road is expected to continue to provide access to the site in all weather conditions. The access road is partially paved and partially covered with gravel; therefore, it is considered adequate for providing the necessary safe access to the site in the event of an emergency or for maintenance equipment.

### **6.2 FINDINGS AND RECOMMENDATIONS**

No unstable ground surfaces and no major erosion or loss of road base was observed on the access road along the west side of the landfill during the inspection period. No maintenance or repair is required.

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## 7.0 SUMMARY OF RECOMMENDATIONS

This section summarizes the recommendations included in the previous sections.

Based on the inspections completed during this reporting period, there are no unstable or significant surface depressions, cracks, major soil losses, access road problems, or signs of excessive rodent burrowing.

The central and eastern portions of the landfill cover have good vegetative growth. Even though the western portion of the cover is relatively sparsely vegetated, existing jute mesh and straw wattle material are effectively being used to inhibit shallow soil erosion that occurs during heavy rain events.

Overall, the surface water drainage system complies with the landfill cover system performance criteria described in the PCIMP (TtFW 2004a), and no additional soil erosion control material, vegetation plantings, construction activities (e.g., regrading), or other maintenance activities are recommended at this time.

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## 8.0 REFERENCES

- BEI (Bechtel Environmental, Inc.). 2007. Final Third Annual Groundwater Monitoring Report, IR Sites 5 & 7, Naval Weapons Station Seal Beach, California. June.
- CH2M Hill. 2002. Final Engineering Evaluation/Cost Analysis (EE/CA), Non-Time-Critical Removal Action for Site 7, Station Landfill, Naval Weapons Station Seal Beach, California. March 12.
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\_\_\_\_\_. 2010. Final Fall 2009 and Winter 2010 Annual Post-Closure Inspection and Maintenance Report, Installation Restoration Program Site 7 (Former Station Landfill), Naval Weapons Station Seal Beach, Seal Beach, California. May 21.

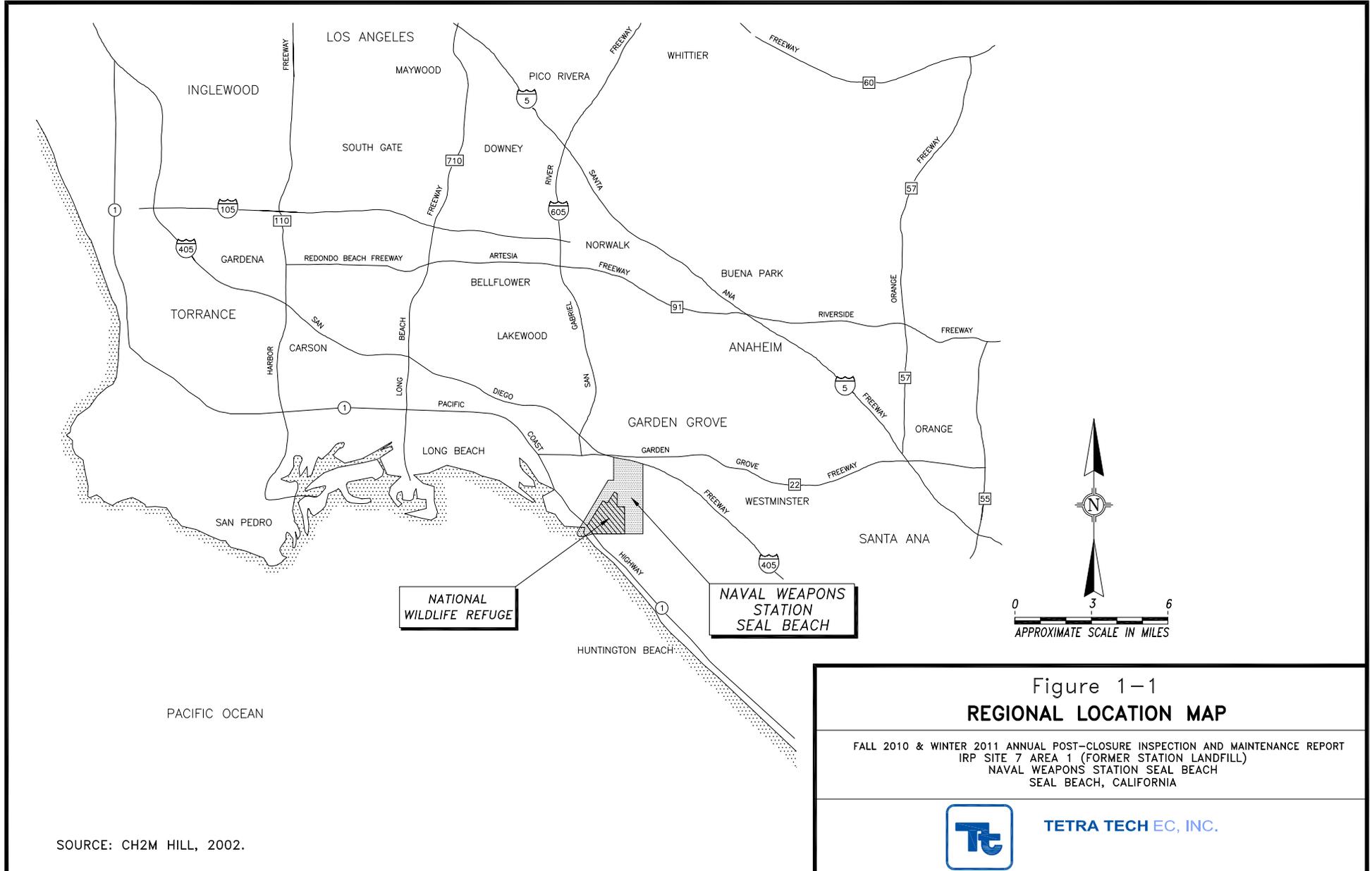
\_\_\_\_\_. 2011. Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection and Maintenance Report, Installation Restoration Program Site 7 (Former Station Landfill), Naval Weapons Station Seal Beach, Seal Beach, California. July 20.

TtFW (Tetra Tech FW, Inc.) 2004a. Final Post-Closeout Inspection and Maintenance Plan, Installation Restoration Program Site 7 (Station Landfill), Naval Weapons Station Seal Beach, Seal Beach, California. December 8.

\_\_\_\_\_. 2004b. Final Project Closeout Report, Non-Time-Critical Remedial Action Installation Restoration Program Site 7 (Station Landfill) and Site 4 (Perimeter Road AOPCs 1A and 2A), Naval Weapons Station Seal Beach, Seal Beach, California. August 20.

## **FIGURES**

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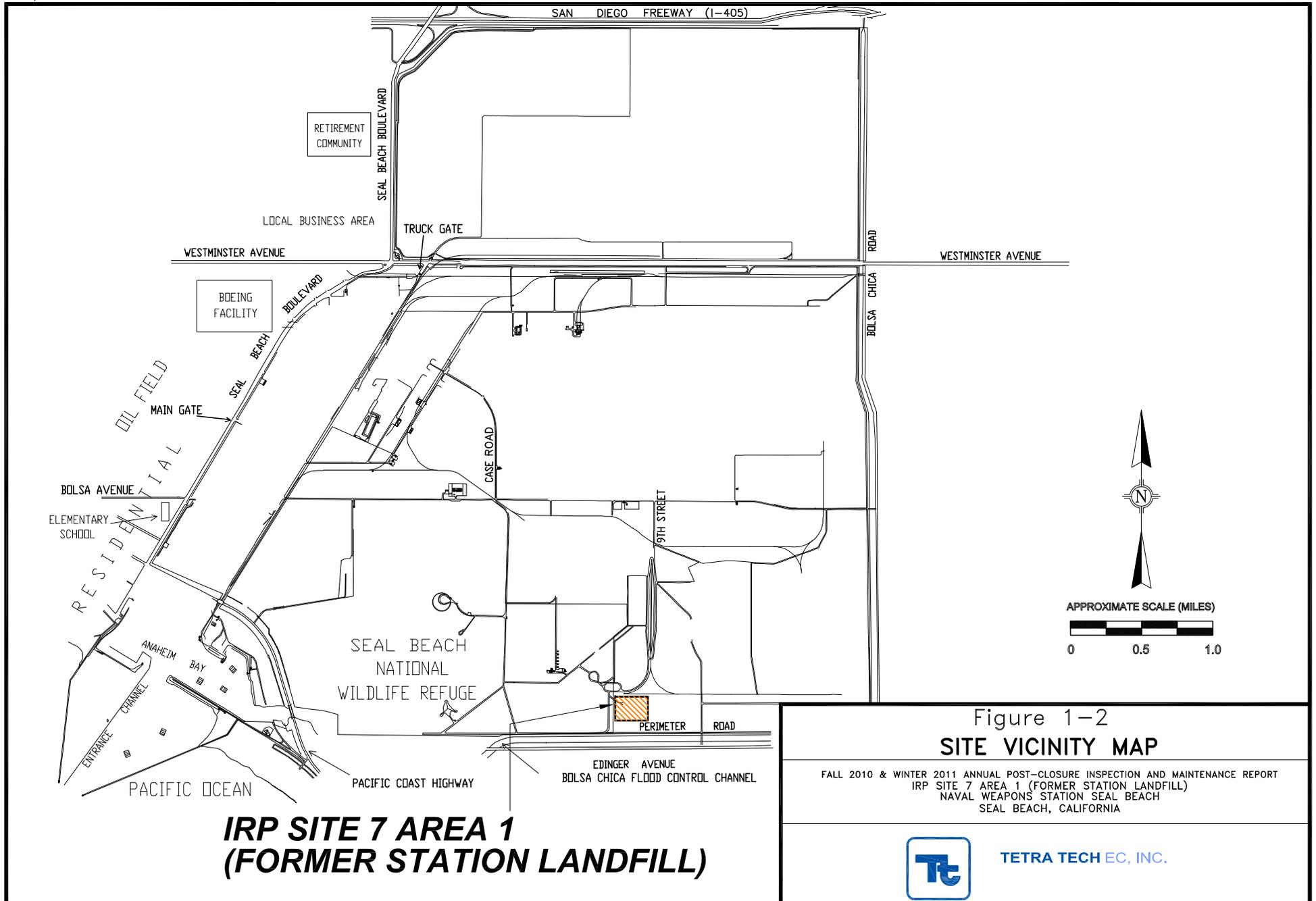
SOURCE: CH2M HILL, 2002.

Figure 1-1  
**REGIONAL LOCATION MAP**

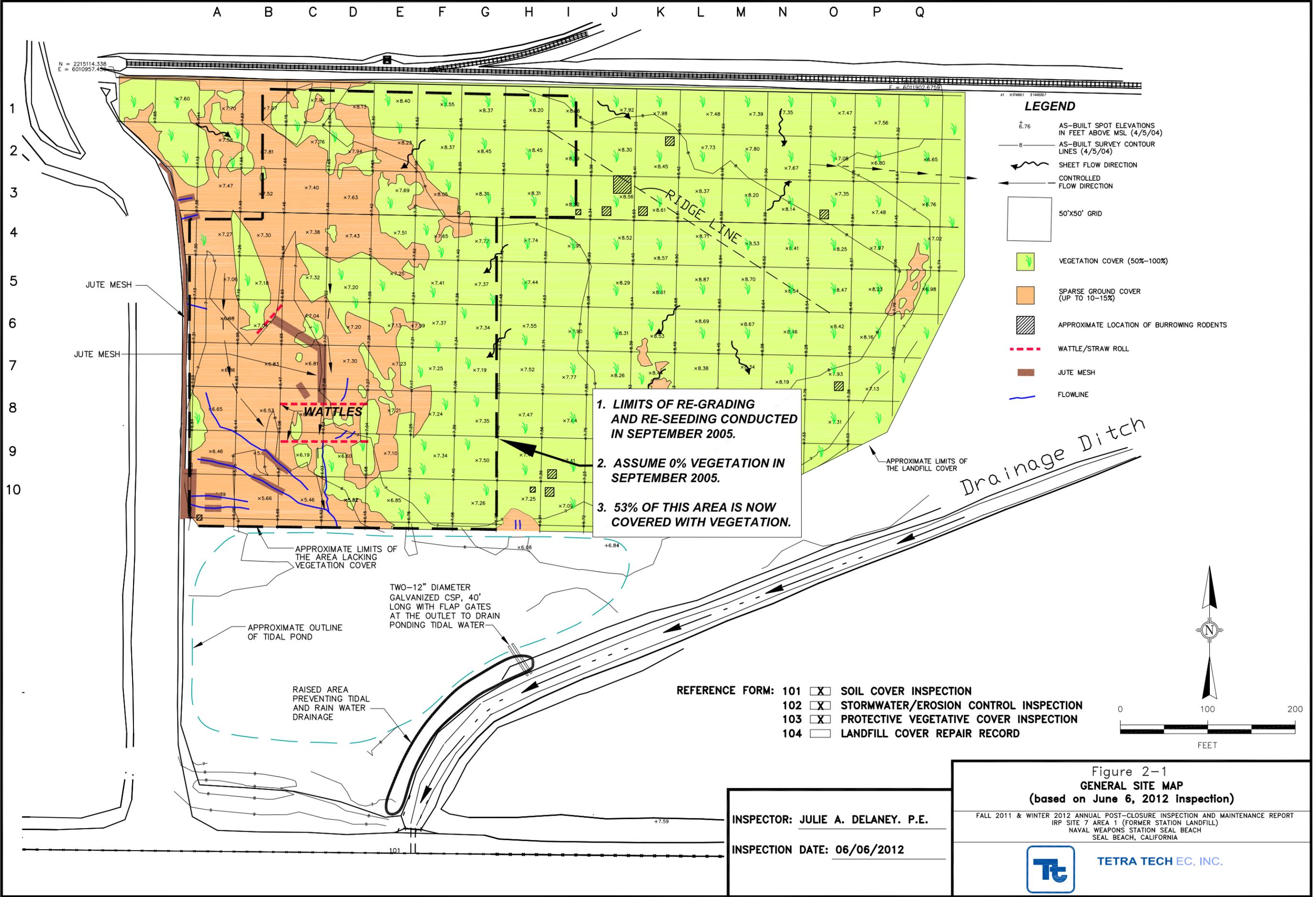
FALL 2010 & WINTER 2011 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
NAVAL WEAPONS STATION SEAL BEACH  
SEAL BEACH, CALIFORNIA



TETRA TECH EC, INC.



P:\3570-RAC\CTO-0008\DWG\2012.0606 SITE INSPECTION\FIG 2-1.DWG  
 Jul 31, 2012 3:20:29 PM  
 PLOT/UPDATE:



INSPECTOR: JULIE A. DELANEY, P.E.  
 INSPECTION DATE: 06/06/2012

Figure 2-1  
**GENERAL SITE MAP**  
 (based on June 6, 2012 inspection)

FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
 IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
 NAVAL WEAPONS STATION SEAL BEACH  
 SEAL BEACH, CALIFORNIA



**TETRA TECH EC, INC.**

## **APPENDIX A**

### **INSPECTION REPORTS**

**APPENDIX A-1 – OCTOBER 4, 2011, INSPECTION REPORT**

**APPENDIX A-2 – NOVEMBER 23, 2011, INSPECTION REPORT**

**APPENDIX A-3 – MARCH 19, 2012, INSPECTION REPORT**

**APPENDIX A-4 – JUNE 6, 2012, INSPECTION REPORT**

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**APPENDIX A-1 – OCTOBER 4, 2011, INSPECTION REPORT**

**FORM 101 – SOIL COVER INSPECTION**

**FORM 102 – STORMWATER/EROSION CONTROL INSPECTION**

**FORM 103 – PROTECTIVE VEGETATIVE COVER INSPECTION**

**FORM 104 – LANDFILL COVER REPAIR RECORD**

**FIGURE A-1A – LANDFILL COVER INSPECTION MAP**

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# FORM 101

## SOIL COVER INSPECTION (OCTOBER 4, 2011)

**Type of Inspection:**

Pre-Rainy Season (2011-2012)

**Inspector Name:** Julie A. Delaney, P.E. **Affiliation (Name of Navy Consultant or Representative):** Tetra Tech EC, Inc. (TtEC)

**Date:** 10/4/11 **Time:** 10:00 a.m. **Weather Condition:** Cloudy to Partly Rain

**OBSERVATION TYPE AND DETAILED DESCRIPTION:**

Erosion     Sloughing/Sliding     Cracks/Fissures     Subsidence/Depression     Evidence of Burrowing Rodents     Others

Evidence of burrowing rodents (probably gophers) was observed (See Figure A-1A). Ground holes and 2" to 3" loose soil mounding was observed in 11 areas in the eastern 2/3rds of the landfill cover. No trash exposure was observed.

**LOCATION OF OBSERVATION (Shown on the attached Figure A-1A):** \_\_\_\_\_

The approximate locations of the evidence of burrowing rodents are indicated on Figure A-1A.

**RECOMMENDATIONS:** Consider setting traps or installing four to six 8' to 10' high predatory bird perches in the vicinity of the burrowing rodents. Holes in disturbed areas should be filled and tamped when rodents are gone.

**REMARKS:** \_\_\_\_\_

Signature

Site Inspector/Engineer

Julie A. Delaney

Date 10/4/11

**FORM 102**

**STORMWATER/EROSION CONTROL INSPECTION  
(OCTOBER 4, 2011)**

**Date:** 10/4/11 **Name of Inspector/Engineer:** Julie A. Delaney, P.E.

Observations:

- |   |   |
|---|---|
| <u>No</u> 1. Ponding                          | <u>No</u> 5. Lack of Positive Drainage    |
| <u>No</u> 2. Downstream Drainage Obstructions | <u>No</u> 6. Silt Deposition at Low Areas |
| <u>No</u> 3. Cover Washouts                   | <u>No</u> 7. Vegetation Washout           |
| <u>No</u> 4. Gully Erosion                    |   |

TYPE OF DEFICIENCY: \_\_\_\_\_

None

LOCATION OF OBSERVATION (shown on the attached Figure A-1A): \_\_\_\_\_

None

RECOMENDATIONS: \_\_\_\_\_

None

COMMENTS: Repairs were made to previously observed areas with shallow erosion as detailed on Form 104. Repairs were recommended in the Final Fall 2010 and Winter 2011 Annual Post-Closure Inspection and Maintenance Report (Tetra Tech EC, 2011).

Signature

Site Inspector/Engineer

*Julie A. Delaney*

Date 10/4/11

# FORM 103

## PROTECTIVE VEGETATIVE COVER INSPECTION (OCTOBER 4, 2011)

**Location:** IRP Site 7 Landfill **Date and Time:** 10/4/11 10:00 a.m.

**Boundary Roads:** Good/moist **Inspector Name:** Julie A. Delaney, P.E.

**General Soil Condition:** Wet Moist Dry                      **Weather:** Cloudy to Partly Rain

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Some bare areas in the western 1/3 <sup>rd</sup> of landfill	Continue inspection program. Add erosion control (jute mesh, etc.) when necessary
Shrubs	Present in eastern 2/3 <sup>rd</sup> of landfill	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Present	Continue inspection program. Monitor if a concern
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Not apparent	None
<p><b>Note:</b> A hand-watering program was implemented over the western 1/3<sup>rd</sup> of the landfill over the summer months for existing living plants. Numerous new sprouts on existing plants were observed. Watering seemed to keep the living plants alive with no observed losses.</p> <p>Compared to the previous site inspection in completed March 2011, it does not appear that the limits of the vegetation cover expanded significantly. However, the density of new sprouts/plants in the watered areas increased. The limits of vegetation on Figure A-1A were adjusted to more accurately represent site conditions, and do not necessarily represent significant plant growth or plant loss.</p>		

Signature

Site Inspector/Engineer

Julie A. Delaney

Date 10/4/11

**FORM 104**

**LANDFILL COVER REPAIR RECORD  
(OCTOBER 4, 2011)**

**Maintenance Engineer:** Mark Cutler **Date:** 10/4/11 **Time:** 1:00 p.m.

**Affiliation:** TtEC

**DEFICIENCY TYPE AND DETAILED DESCRIPTION:**

Erosion     Sloughing/Sliding     Cracks/Fissures     Subsidence/Depression     Other

As recommended in the Final Fall 2010 & Winter 2011 Annual Post-Closure Inspection and Maintenance Report (Tetra Tech EC, 2011), areas with minor erosion (less than 2 inches deep) along the access road were hand-graded and covered with jute mesh to prevent further potential erosion and deepening. In addition, another layer of jute mesh was added to an area previously covered with jute mesh near the center of the western portion of the landfill, and additional straw wattle material was added immediately behind existing wattle material to strengthen the erosion control in those areas.

**LOCATION OF REPAIR ACTIVITY:**

Western portion of the landfill (see attached photos).

**REPAIR ACTION TAKEN:**

Areas with minor erosion identified in the Fall 2010 & Winter 2011 Annual Inspection Report were addressed with jute mesh. In addition, extra jute mesh and wattle material were added to other areas as a preventative measure. A total of 275 feet of jute mesh (4 feet wide) and 75 feet of straw wattle material were placed on the western portion of the landfill cover.

**ATTACHMENTS:** (as-built drawings, compaction reports, etc. as appropriate): None needed.

**COMMENTS:**

Signature

Site Inspector/Engineer

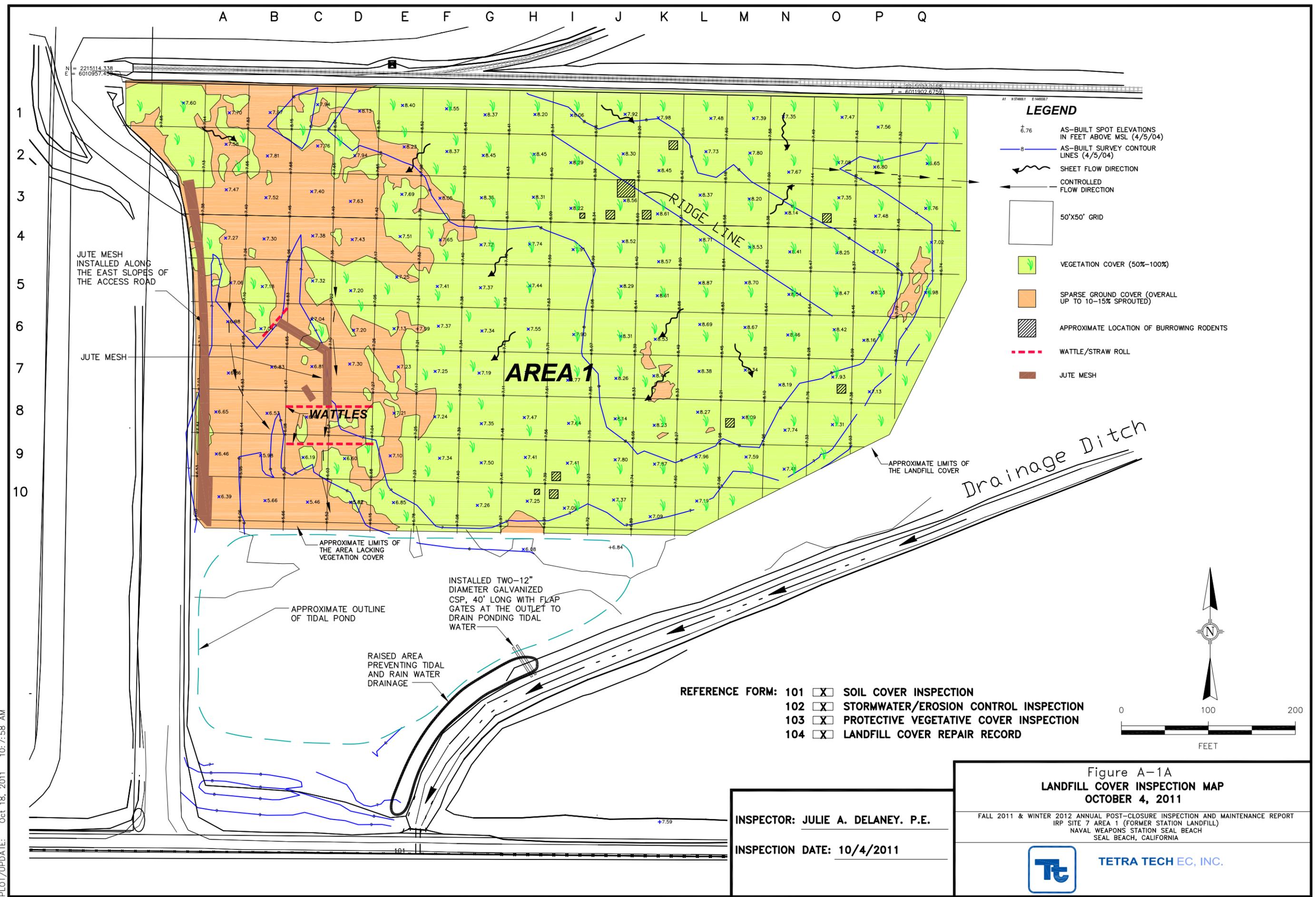
*Mark Cutler*

Date 10/4/11

NAVWPNSTA Seal Beach  
representative (IR Program  
Coordinator or ROICC)

Date \_\_\_\_\_

C:\USERS\JULIE\DELANEY\DESKTOP\SEAL BEACH\08000XAT1A.DWG  
 PLOT/UPDATE: Oct 18, 2011 10:7:58 AM



**LEGEND**

- ± 6.76 AS-BUILT SPOT ELEVATIONS IN FEET ABOVE MSL (4/5/04)
- AS-BUILT SURVEY CONTOUR LINES (4/5/04)
- SHEET FLOW DIRECTION
- ← CONTROLLED FLOW DIRECTION
- 50'X50' GRID
- VEGETATION COVER (50%-100%)
- SPARSE GROUND COVER (OVERALL UP TO 10-15% SPROUTED)
- ▨ APPROXIMATE LOCATION OF BURROWING RODENTS
- - - WATTLE/STRAW ROLL
- JUTE MESH

- REFERENCE FORM: 101  SOIL COVER INSPECTION  
 102  STORMWATER/EROSION CONTROL INSPECTION  
 103  PROTECTIVE VEGETATIVE COVER INSPECTION  
 104  LANDFILL COVER REPAIR RECORD

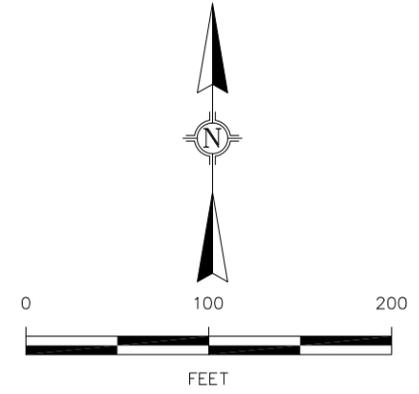


Figure A-1A  
**LANDFILL COVER INSPECTION MAP**  
**OCTOBER 4, 2011**

FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
 IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
 NAVAL WEAPONS STATION SEAL BEACH  
 SEAL BEACH, CALIFORNIA

INSPECTOR: JULIE A. DELANEY, P.E.  
 INSPECTION DATE: 10/4/2011



TETRA TECH EC, INC.



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking northerly from west side of site.**



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking northeast from west side of site.**



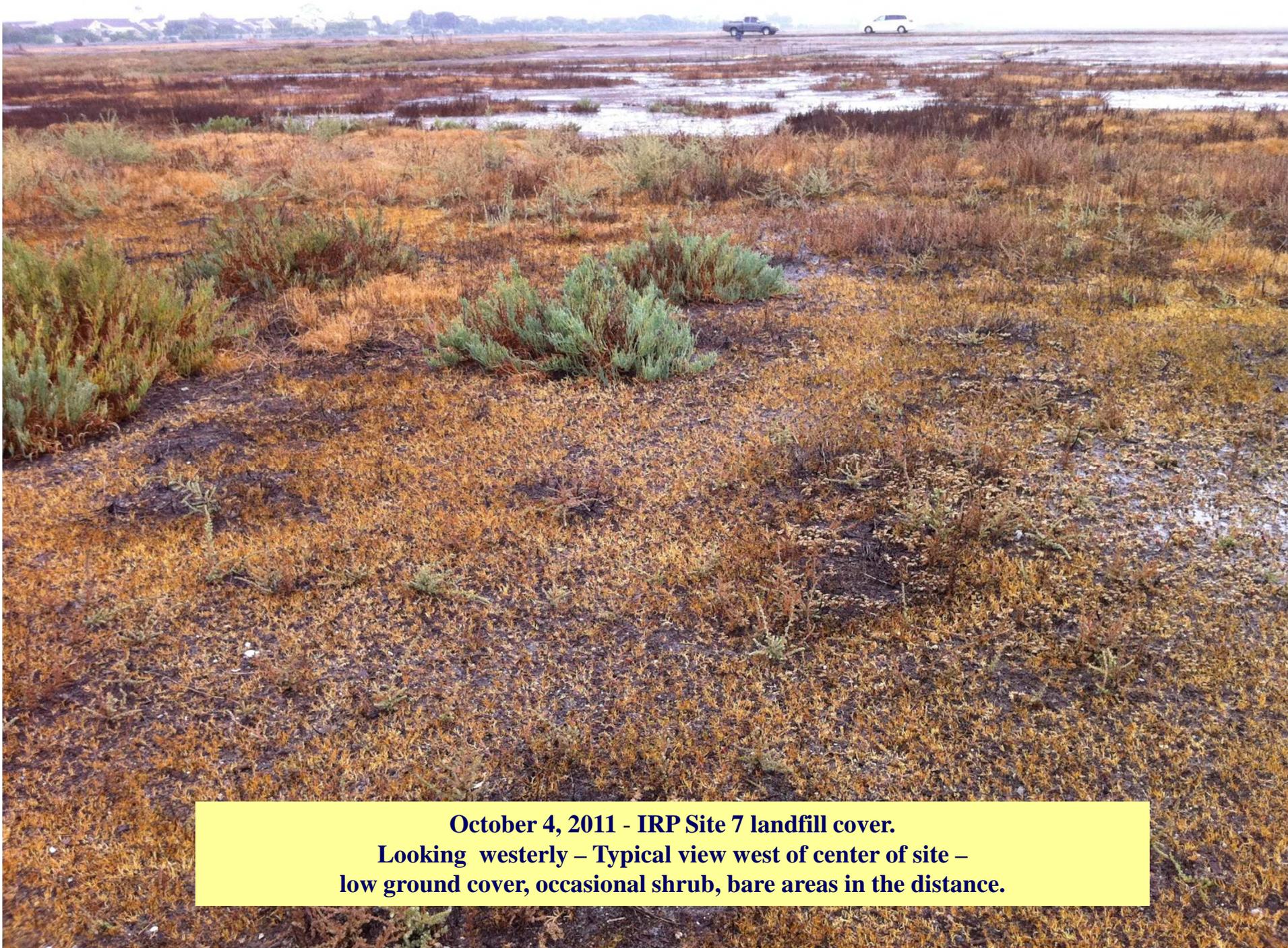
**October 4, 2011 - IRP Site 7 landfill cover.  
Looking westerly from west side of site.**



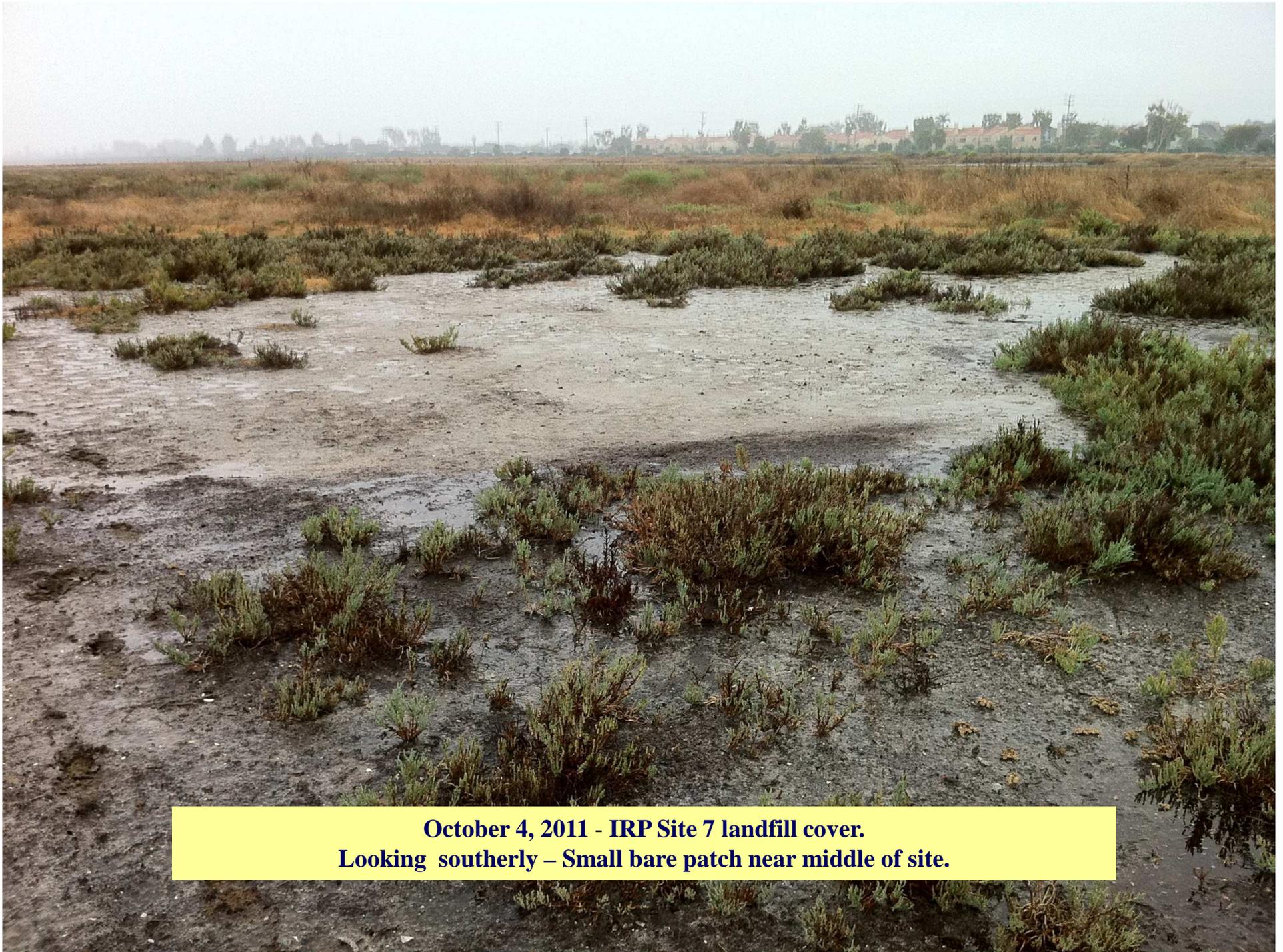
**October 4, 2011 - IRP Site 7 landfill cover.  
Looking southeast from west side of site.**



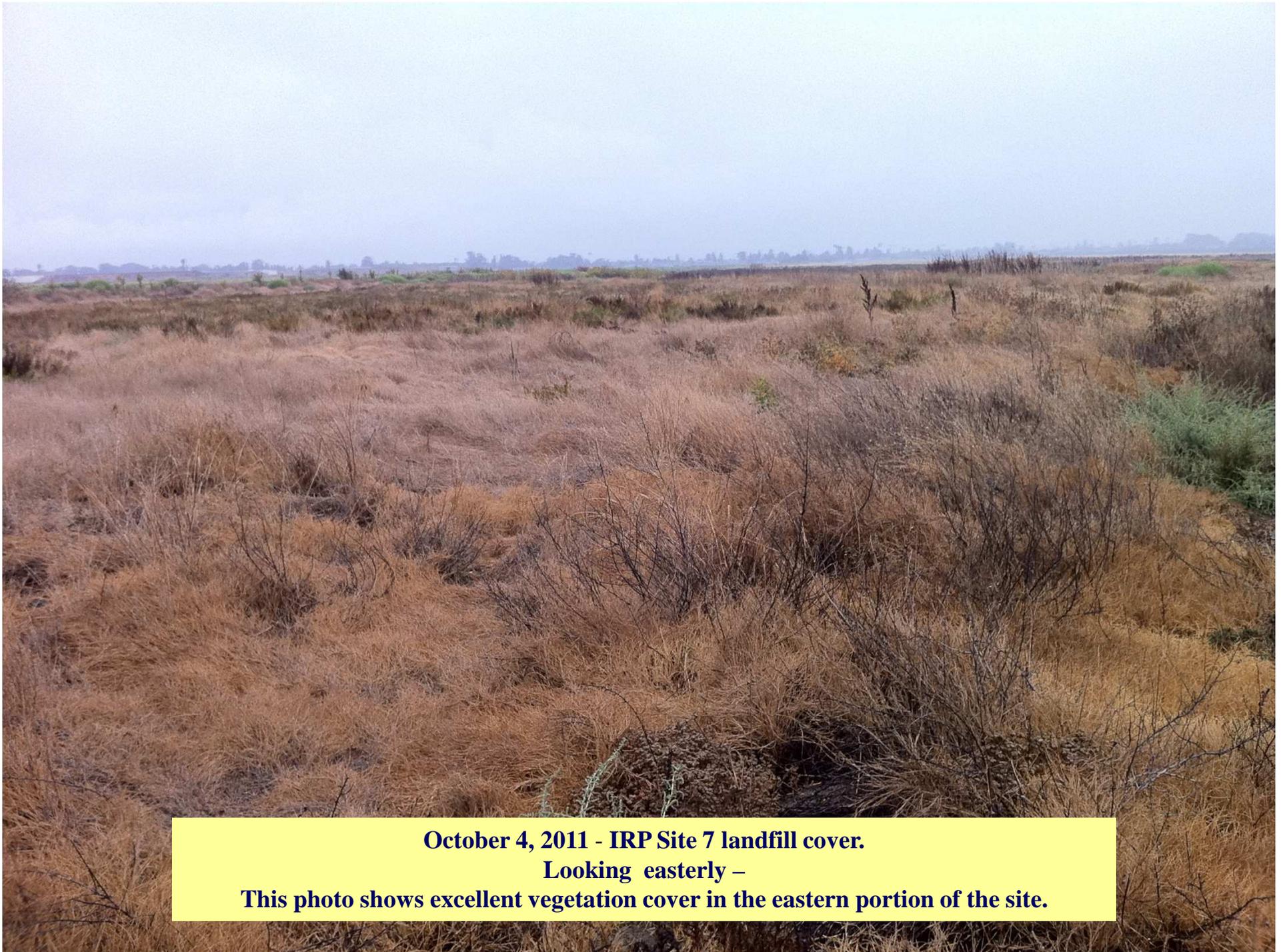
**October 4, 2011 - IRP Site 7 landfill cover.  
Looking southerly from west side of site –  
This photo shows an overall estimated 10%-15% vegetation cover in the western third of  
the site.**



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking westerly – Typical view west of center of site –  
low ground cover, occasional shrub, bare areas in the distance.**



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking southerly – Small bare patch near middle of site.**



**October 4, 2011 - IRP Site 7 landfill cover.**

**Looking easterly –**

**This photo shows excellent vegetation cover in the eastern portion of the site.**



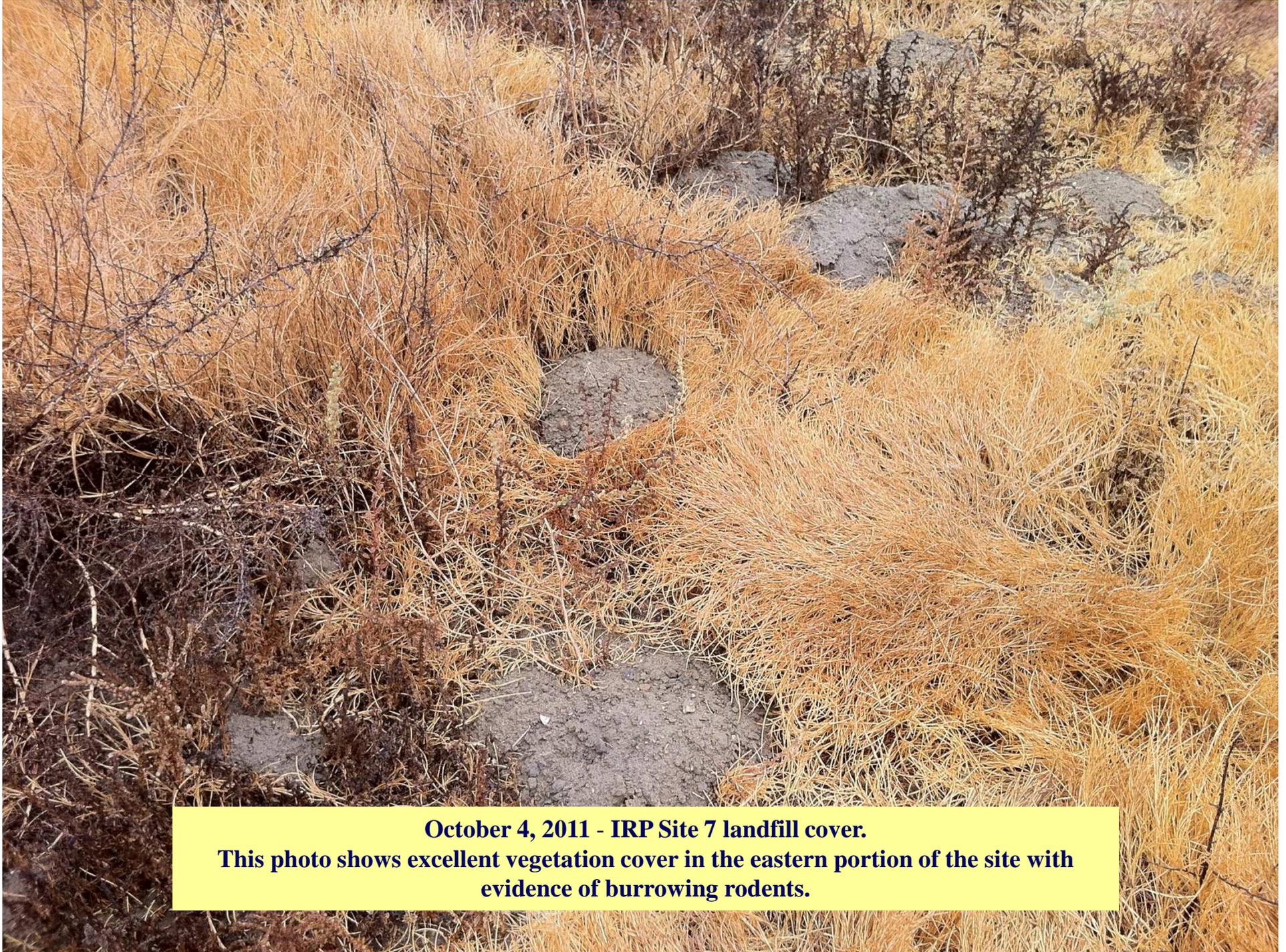
**October 4, 2011 - IRP Site 7 landfill cover.**

**Looking southerly –**

**This photo shows excellent vegetation cover in the eastern portion of the site.**



**October 4, 2011 - IRP Site 7 landfill cover.  
This photo shows evidence of burrowing rodents by mounded disturbed soil.**



**October 4, 2011 - IRP Site 7 landfill cover.  
This photo shows excellent vegetation cover in the eastern portion of the site with  
evidence of burrowing rodents.**



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking northerly from southwest side of site.  
New jute mesh and wattles (straw rolls).**



**October 4, 2011 - IRP Site 7 landfill cover.  
Looking southerly along western edge of site at  
new jute mesh installed along access road edge.**

**APPENDIX A-2 – NOVEMBER 23, 2011, INSPECTION REPORT**

**FORM 101 – SOIL COVER INSPECTION**

**FORM 102 – STORMWATER/EROSION CONTROL INSPECTION**

**FORM 103 – PROTECTIVE VEGETATIVE COVER INSPECTION**

**FIGURE A-1B – LANDFILL COVER INSPECTION MAP**

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# FORM 101

## SOIL COVER INSPECTION (NOVEMBER 23, 2011)

**Type of Inspection:**

Rainy Season (2011-2012)

**Inspector Name:** Julie A. Delaney, P.E. **Affiliation (Name of Navy Consultant or Representative):** Tetra Tech EC, Inc. (TtEC)

**Date:** 11/23/11 **Time:** 10:40 a.m. **Weather Condition:** Sunny with light cloud cover, 63 °F

**OBSERVATION TYPE AND DETAILED DESCRIPTION:**

Erosion     Sloughing/Sliding     Cracks/Fissures     Subsidence/Depression     Evidence of Burrowing Rodents     Others

There has been no change to the signs of burrowing rodents observed during the October 4, 2011 Inspection. The recent rain left the ground wet, no fresh mounds were observed.

**LOCATION OF OBSERVATION (Shown on the attached Figure A-1B):** \_\_\_\_\_

The approximate locations of the evidence of burrowing rodents are indicated on Figure A-1B.

**RECOMMENDATIONS:** Same as included in the October 4, 2011 inspection report. Consider traps or 8' to 10' high predatory bird perches in the vicinity of the burrowing rodents. Holes in disturbed areas could be filled and tamped.

**REMARKS:** \_\_\_\_\_

Site Inspector/Engineer

*Julie A. Delaney*

Date 11/23/11

# FORM 102

## STORMWATER/EROSION CONTROL INSPECTION (NOVEMBER 23, 2011)

**Date:** 11/23/11 **Name of Inspector/Engineer:** Julie A. Delaney, P.E.

Observations:

<u>Minor</u>	1. Ponding	<u>Minor</u>	5. Lack of Positive Drainage
<u>No</u>	2. Downstream Drainage Obstructions	<u>Minor</u>	6. Silt Deposition at Low Areas
<u>No</u>	3. Cover Washouts	<u>No</u>	7. Vegetation Washout
<u>No</u>	4. Gully Erosion		

TYPE OF DEFICIENCY: \_\_\_\_\_

The beginnings of shallow flow-lines formed in several places, all less than 2" in depth maximum.  
Ponding was observed in three small areas (see photos).

LOCATION OF OBSERVATION (shown on the attached Figure A-1B): \_\_\_\_\_

Shallow flow-lines were observed along the western edge and in the western 1/3 of the landfill  
cover. Three small areas of ponding were observed on the western 1/3 of the cover.

RECOMENDATIONS: \_\_\_\_\_

Add additional jute mesh and possibly gravel bags in areas of shallow flow-lines.

COMMENTS: Additional jute mesh will be added to the western edge of the landfill cover before  
the next inspection.

Signature

Site Inspector/Engineer



Date 11/23/11

# FORM 103

## PROTECTIVE VEGETATIVE COVER INSPECTION (NOVEMBER 23, 2011)

**Location:** IRP Site 7 Landfill **Date and Time:** 11/23/11 10:40 a.m.

**Boundary Roads:** Good/moist **Inspector Name:** Julie A. Delaney, P.E.

**General Soil Condition:** Wet Moist Dry                      **Weather:** Sunny with light cloud cover, 63 °F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Some bare areas in the western 1/3 <sup>rd</sup> of landfill cover	Continue inspection program. Add erosion control (jute mesh, etc.) when necessary
Shrubs	Present in eastern 2/3 <sup>rd</sup> of landfill	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Some present	Continue inspection program. Monitor if a concern
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Not apparent	None
<p><b>Note:</b> Compared to the previous site inspection completed in October 2011, it does not appear that the limits of the vegetation cover have changed.</p>		

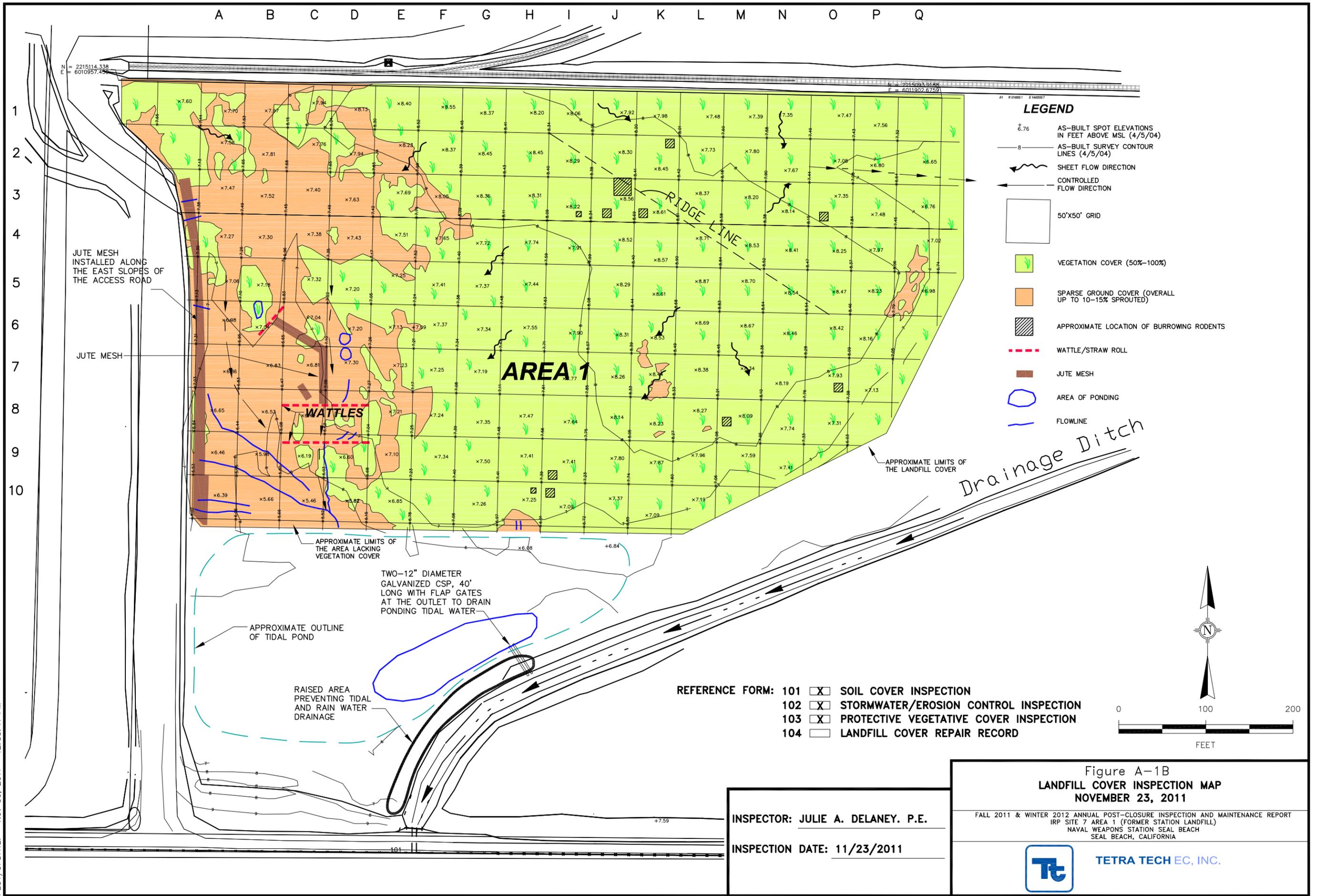
Signature

Site Inspector/Engineer

*Julie A. Delaney*

Date 11/23/11

P:\3570-RAC\CTO-0008\DWG\2011.11.23 SITE INSPECTION\08000X1A.DWG  
 Nov 30, 2011 12:55:41 PM  
 PLOT/UPDATE:



**LEGEND**

- 7.76 AS-BUILT SPOT ELEVATIONS IN FEET ABOVE MSL (4/5/04)
- 8 AS-BUILT SURVEY CONTOUR LINES (4/5/04)
- SHEET FLOW DIRECTION
- CONTROLLED FLOW DIRECTION
- 50'X50' GRID
- VEGETATION COVER (50%-100%)
- SPARSE GROUND COVER (OVERALL UP TO 10-15% SPROUTED)
- APPROXIMATE LOCATION OF BURROWING RODENTS
- WATTLE/STRAW ROLL
- JUTE MESH
- AREA OF PONDING
- FLOWLINE

- REFERENCE FORM:
- 101  SOIL COVER INSPECTION
  - 102  STORMWATER/EROSION CONTROL INSPECTION
  - 103  PROTECTIVE VEGETATIVE COVER INSPECTION
  - 104  LANDFILL COVER REPAIR RECORD

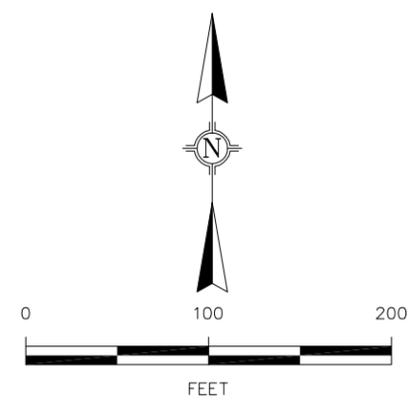


Figure A-1B  
**LANDFILL COVER INSPECTION MAP**  
**NOVEMBER 23, 2011**

FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
 IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
 NAVAL WEAPONS STATION SEAL BEACH  
 SEAL BEACH, CALIFORNIA

INSPECTOR: JULIE A. DELANEY, P.E.  
 INSPECTION DATE: 11/23/2011



TETRA TECH EC, INC.



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking northerly from west side of site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking northeast from west side of site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking westerly from west side of site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking southeast from west side of site. This photo shows small areas of ponding.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking southerly from west side of site –  
This photo shows the vegetation cover in the western portion of the site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking westerly – Typical view center of site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking easterly –  
This photo shows excellent vegetation cover in the eastern portion of the site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking southerly –  
This photo shows excellent vegetation cover in the eastern portion of the site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
This photo shows evidence of burrowing rodents.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking Westerly at Northwest edge of site. This photo shows two short flow-lines  
along side of road.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking southerly from west side of site.  
This photo shows tire tracks on western edge of landfill cover.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking west along western edge of site. This photo shows a short flow-line along side  
of road.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking northerly along western edge of site. This photo shows flow-line near road.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking easterly from southwestern edge of site. This photo shows flow-line near  
southwest edge of site.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking easterly along southern wattle showing shallow flow-lines.**



**November 23, 2011 - IRP Site 7 landfill cover.  
Looking easterly along southern straw roll.**

**APPENDIX A-3 – MARCH 19, 2012, INSPECTION REPORT**

**FORM 101 – SOIL COVER INSPECTION**

**FORM 102 – STORMWATER/EROSION CONTROL INSPECTION**

**FORM 103 – PROTECTIVE VEGETATIVE COVER INSPECTION**

**FIGURE A-1C – LANDFILL COVER INSPECTION MAP**

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# FORM 101

## SOIL COVER INSPECTION (MARCH 19, 2012)

**Type of Inspection:**

Rainy Season (2011-2012)

**Inspector Name:** Julie A. Delaney, P.E. **Affiliation (Name of Navy Consultant or Representative):** Tetra Tech EC, Inc. (TtEC)

**Date:** 03/19/12 **Time:** 12:30 p.m. **Weather Condition:** Sunny with scattered clouds, 65 °F

**OBSERVATION TYPE AND DETAILED DESCRIPTION:**

Erosion     Sloughing/Sliding     Cracks/Fissures     Subsidence/Depression     Evidence of Burrowing Rodents     Others

There has been no change to the signs of burrowing rodents observed during the October 4, 2011 Inspection. The recent rain left the ground damp, no fresh mounds were observed.

**LOCATION OF OBSERVATION (Shown on the attached Figure A-1C):** NA

**RECOMMENDATIONS:** None.

**REMARKS:** None.

Site Inspector/Engineer

Julie A. Delaney

Date 03/19/12

**FORM 102**

**STORMWATER/EROSION CONTROL INSPECTION  
(MARCH 19, 2012)**

**Date:** 03/19/12 **Name of Inspector/Engineer:** Julie A. Delaney, P.E.

Observations:

- |              |                                     |              |                                 |
|--------------|-------------------------------------|--------------|---------------------------------|
| <u>Minor</u> | 1. Ponding                          | <u>Minor</u> | 5. Lack of Positive Drainage    |
| <u>No</u>    | 2. Downstream Drainage Obstructions | <u>Minor</u> | 6. Silt Deposition at Low Areas |
| <u>No</u>    | 3. Cover Washouts                   | <u>No</u>    | 7. Vegetation Washout           |
| <u>No</u>    | 4. Gully Erosion                    |              |                                 |

**TYPE OF DEFICIENCY:** \_\_\_\_\_

An 8" gap in the northern-most straw wattle and one small area of shallow ponding were observed (see Figure A-1C and photos).

**LOCATION OF OBSERVATION (shown on the attached Figure A-1C):** \_\_\_\_\_

Both observations listed above are on the western 1/3 of the landfill cover (see Figure A-1C).

**RECOMENDATIONS:** \_\_\_\_\_

Repair small gap in northern-most straw wattle prior to next rainfall.

**COMMENTS:** Small gap in northern-most straw wattle was repaired 3/28/2012.

Signature

Site Inspector/Engineer



Date 03/19/12

# FORM 103

## PROTECTIVE VEGETATIVE COVER INSPECTION (MARCH 19, 2012)

**Location:** IRP Site 7 Landfill **Date and Time:** 03/19/12 12:30 p.m.

**Boundary Roads:** Good/moist **Inspector Name:** Julie A. Delaney, P.E.

**General Soil Condition:** Wet            Damp            Dry            **Weather:** Sunny with scattered clouds, 65 °F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Some bare areas in the western 1/3 <sup>rd</sup> of landfill cover	Continue inspection program.
Shrubs	Present in eastern 2/3 <sup>rd</sup> of landfill	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Some present	Continue inspection program. Monitor if a concern
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Not apparent	None

*Notes:* See Figure A-1C for Landfill Cover Inspection Map. Compared to the site inspection completed in October 2011, it does not appear that the limits of the vegetation cover have changed, however, some vegetation was beginning to bloom.

Signature

Site Inspector/Engineer

*Julie A. Delaney*

Date 03/19/12

A B C D E F G H I J K L M N O P Q

N = 2215114.338  
E = 6010957.456

N = 2214993.3148  
E = 6011902.67591

1  
2  
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9  
10

JUTE MESH  
INSTALLED ALONG  
THE EAST SLOPES OF  
THE ACCESS ROAD

JUTE MESH

**AREA 1**

8" GAP IN STRAW ROLL  
(REPAIRED 3/28/12)

APPROXIMATE LIMITS OF  
THE AREA LACKING  
VEGETATION COVER

APPROXIMATE OUTLINE  
OF TIDAL POND

RAISED AREA  
PREVENTING TIDAL  
AND RAIN WATER  
DRAINAGE

TWO-12" DIAMETER  
GALVANIZED CSP, 40'  
LONG WITH FLAP GATES  
AT THE OUTLET TO DRAIN  
PONDING TIDAL WATER

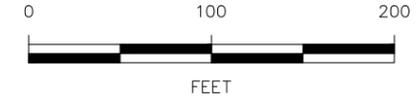
REFERENCE FORM: 101  SOIL COVER INSPECTION  
102  STORMWATER/EROSION CONTROL INSPECTION  
103  PROTECTIVE VEGETATIVE COVER INSPECTION  
104  LANDFILL COVER REPAIR RECORD

**LEGEND**

- 6.76 AS-BUILT SPOT ELEVATIONS IN FEET ABOVE MSL (4/5/04)
- 8 AS-BUILT SURVEY CONTOUR LINES (4/5/04)
- SHEET FLOW DIRECTION
- CONTROLLED FLOW DIRECTION
- 50'X50' GRID
- VEGETATION COVER (50%-100%)
- SPARSE GROUND COVER (UP TO 10-15%)
- APPROXIMATE LOCATION OF BURROWING RODENTS
- WATTLE/STRAW ROLL
- JUTE MESH
- AREA OF PONDING
- FLOWLINE

APPROXIMATE LIMITS OF  
THE LANDFILL COVER

Drainage Ditch



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PLOT/UPDATE: Mar 29, 2012 10:30:48 AM

Figure A-1C  
**LANDFILL COVER INSPECTION MAP**  
MARCH 19, 2012

FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
NAVAL WEAPONS STATION SEAL BEACH  
SEAL BEACH, CALIFORNIA

**TETRA TECH EC, INC.**

INSPECTOR: **JULIE A. DELANEY, P.E.**

INSPECTION DATE: **03/19/2012**



**March 19, 2012 - IRP Site 7 landfill cover.  
Looking north at 8" gap in northernmost straw wattle (repaired 3-28-2012).  
(See Figure A-1C for location).**



**March 19, 2012 - IRP Site 7 landfill cover.  
Looking southwest at small area of ponding (See Figure A-1C for location).**



**March 19, 2012 - IRP Site 7 landfill cover.  
Looking northeast at landfill cover from east side of landfill.**



**March 19, 2012 - IRP Site 7 landfill cover.  
Looking east at landfill cover from west side of landfill.**



**March 19, 2012 - IRP Site 7 landfill cover.  
Looking north at landfill cover from the access road on the west side of the landfill.**

**APPENDIX A-4 – JUNE 6, 2012, INSPECTION REPORT**

**FORM 101 – SOIL COVER INSPECTION**

**FORM 102 – STORMWATER/EROSION CONTROL INSPECTION**

**FORM 103 – PROTECTIVE VEGETATIVE COVER INSPECTION**

**FIGURE A-1D – LANDFILL COVER INSPECTION MAP**

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# FORM 101

## SOIL COVER INSPECTION (June 6, 2012)

**Type of Inspection:**

Post-Rainy Season, 2011-2012

**Inspector Name:** Julie A. Delaney, P.E. **Affiliation (Name of Navy Consultant or Representative):** Tetra Tech EC, Inc. (TtEC)

**Date:** 06/06/12 **Time:** 10:50 p.m. **Weather Condition:** Sunny and clear, 67 °F

**OBSERVATION TYPE AND DETAILED DESCRIPTION:**

Erosion     Sloughing/Sliding     Cracks/Fissures     Subsidence/Depression     Evidence of Burrowing Rodents     Others

Evidence of burrowing rodents (probably gophers) was observed. Relatively small areas of loose soil mounding (some fresh) and an occasional small hole were observed. No trash exposure was observed. No apparent significant change in size of impacted areas from last inspection.

**LOCATION OF OBSERVATION:** Located primarily in the eastern 2/3rds of the landfill cover (see Figure A-1D). One small area with fresh mounds was observed at the southwest corner of the landfill cover (see last attached photo).

**RECOMMENDATIONS:** Same as October 2011 inspection. Consider setting traps or installing four to six 8' to 10' high predatory bird perches in the vicinity of the burrowing rodents. Holes in disturbed areas should be filled when rodents are gone. However, apparent lack of expanding areas of gopher impacts suggests that local coyotes may be helping to control the population.

**REMARKS:** None.

Site Inspector/Engineer

*Julie A. Delaney*

Date 06/06/12

**FORM 102**

**STORMWATER/EROSION CONTROL INSPECTION  
(JUNE 6, 2012)**

**Date:** 06/06/12      **Name of Inspector/Engineer:** Julie A. Delaney, P.E.

Observations:

- |           |                                     |              |                                 |
|-----------|-------------------------------------|--------------|---------------------------------|
| <u>No</u> | 1. Ponding                          | <u>Minor</u> | 5. Lack of Positive Drainage    |
| <u>No</u> | 2. Downstream Drainage Obstructions | <u>Minor</u> | 6. Silt Deposition at Low Areas |
| <u>No</u> | 3. Cover Washouts                   | <u>No</u>    | 7. Vegetation Washout           |
| <u>No</u> | 4. Gully Erosion                    |              |                                 |

TYPE OF DEFICIENCY: None. Repairs completed after the last inspection in March 2012 remain intact.

LOCATION OF OBSERVATION: N/A

RECOMENDATIONS: None.

COMMENTS: None.

Signature

Site Inspector/Engineer

*Julie A. Delaney*

Date 06/06/12

# FORM 103

## PROTECTIVE VEGETATIVE COVER INSPECTION (JUNE 6, 2012)

**Location:** IRP Site 7 Landfill **Date and Time:** 06/06/12 10:50 p.m.

**Boundary Roads:** Good/dry **Inspector Name:** Julie A. Delaney, P.E.

**General Soil Condition:** Wet \_\_\_\_\_ Dry X **Weather:** Sunny and clear, 67 °F

ITEM	COMMENTS	RECOMMENDATIONS
Vegetation Cover	Some bare areas in the western 1/3 <sup>rd</sup> of landfill cover	Continue inspection program.
Shrubs	Present in eastern 2/3 <sup>rd</sup> of landfill	None
Vegetation Loss with Soil Erosion	Not apparent	None
Non-native Plants	Some present	Continue inspection program. Monitor if a concern
Fire Hazard, Dead Vegetation, and Deep Rooted Plants	Not apparent	None

**Notes:** See Figure A-1D for Landfill Cover Inspection Map. Compared to the site inspection completed in March 2012, it does not appear that the limits of the vegetation cover have significantly changed, however, some new plants and sprouts were observed.

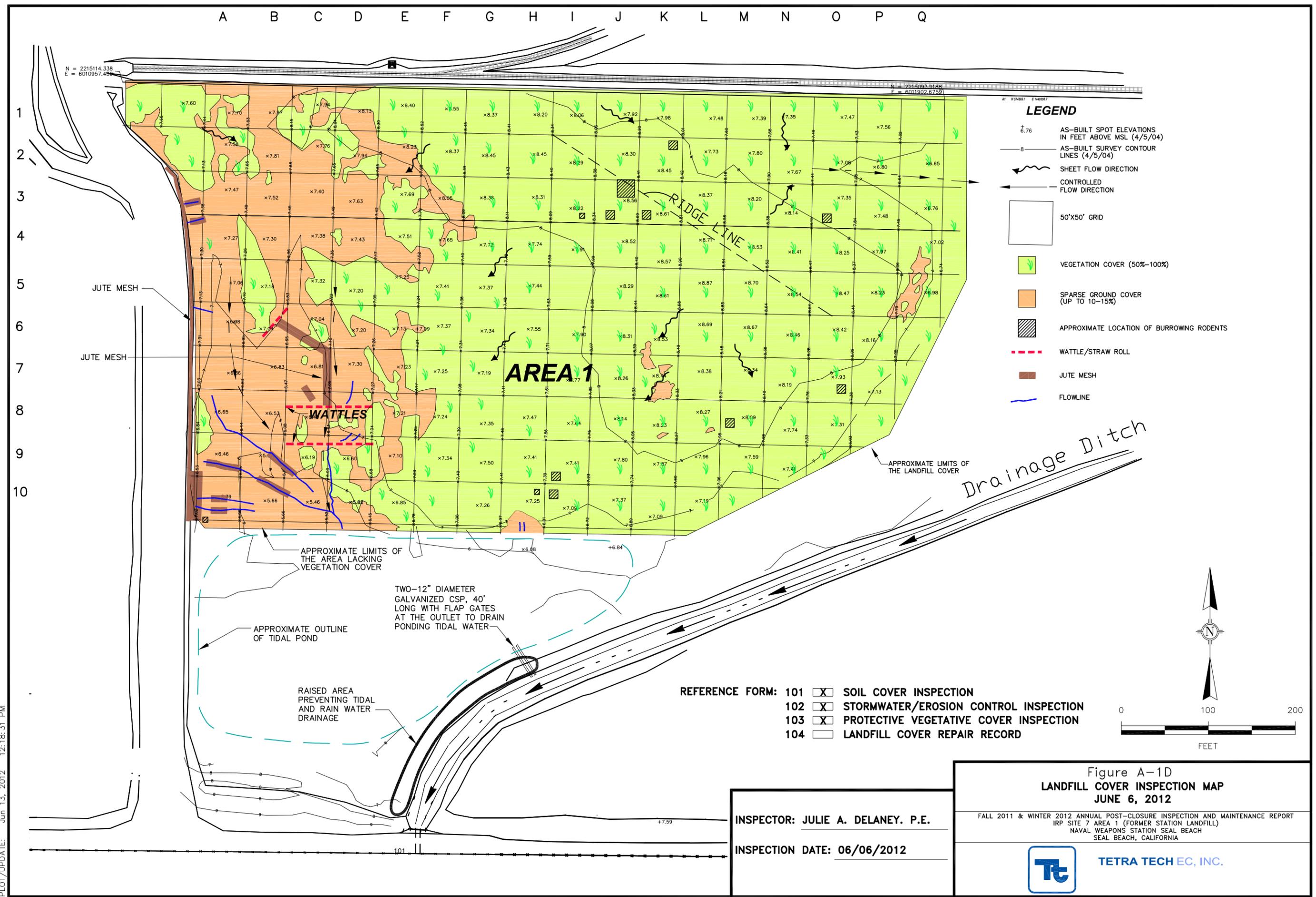
Signature

Site Inspector/Engineer

Julie A. Delaney

Date 06/06/12

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 Jun 13, 2012 12:18:31 PM  
 PLOT/UPDATE:



- LEGEND**
- 7.76 AS-BUILT SPOT ELEVATIONS IN FEET ABOVE MSL (4/5/04)
  - 8 AS-BUILT SURVEY CONTOUR LINES (4/5/04)
  - SHEET FLOW DIRECTION
  - CONTROLLED FLOW DIRECTION
  - 50'X50' GRID
  - VEGETATION COVER (50%-100%)
  - SPARSE GROUND COVER (UP TO 10-15%)
  - APPROXIMATE LOCATION OF BURROWING RODENTS
  - WATTLE/STRAW ROLL
  - JUTE MESH
  - FLOWLINE

- REFERENCE FORM:**
- 101  SOIL COVER INSPECTION
  - 102  STORMWATER/EROSION CONTROL INSPECTION
  - 103  PROTECTIVE VEGETATIVE COVER INSPECTION
  - 104  LANDFILL COVER REPAIR RECORD

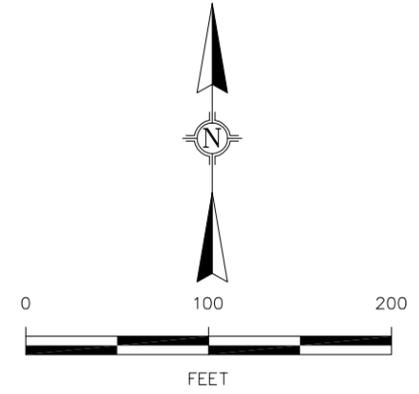


Figure A-1D  
**LANDFILL COVER INSPECTION MAP**  
**JUNE 6, 2012**

FALL 2011 & WINTER 2012 ANNUAL POST-CLOSURE INSPECTION AND MAINTENANCE REPORT  
 IRP SITE 7 AREA 1 (FORMER STATION LANDFILL)  
 NAVAL WEAPONS STATION SEAL BEACH  
 SEAL BEACH, CALIFORNIA



**TETRA TECH EC, INC.**

**INSPECTOR: JULIE A. DELANEY, P.E.**  
**INSPECTION DATE: 06/06/2012**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking east from northwest side of site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking east from southwest corner of site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking west across the poorly vegetated area along the northwestern edge of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking southwest across the poorly vegetated area along the southwestern edge of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking to the northeast across the vegetation cover in the central portion of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking to the east across the vegetation cover in the central portion of the site.  
Typical view of the center and eastern portion of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Typical jute mesh installation in a shallow drainage area.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking to the north at the two straw wattles in the southwest of portion of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking to the northeast at the northern most straw wattle in the southwest portion of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Looking to the southwest at the southern most straw wattle in the southwest portion of the site.**



**June 6, 2012 - IRP Site 7 landfill cover.  
This photo shows typical evidence of burrowing rodents.**



**June 6, 2012 - IRP Site 7 landfill cover.  
Evidence of burrowing rodents along the access road at the southwest corner of the site.**