

**COASTAL DATA EXCHANGE**

**MAUI ISLAND SHORELINE  
STRUCTURE INVENTORY**



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**University of Hawaii Sea Grant**



Stabilized -  
beach lost  
land preserved

Unstabilized -  
land lost  
beach preserved

# Data Collection: General

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- Student internship, Summer 2003
- Structure types: seawall, revetment, grouted revetment, sandbags, groin, other
- Structure locations and lengths documented by walking the shoreline with GPS
- Structures photographed to capture extent (height and width dimensions) and character
- Impacts assessed (beach processes, lateral access, view plane) through standard questions aligned with criteria for a variance in the Maui County Shoreline Rules



# Data Collection: Impact Assessment

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- What is the distance from the structure to the protected building?
- Is there a newer section of the structure?
- Do waves touch the structure?
- Is there a beach in front of the structure?
- Is there a subaerial (dry sand) beach in front of the structure?
- What is the beach width compared to the adjacent unprotected beach?
- Is there erosion at the sides of the structure?
- Is there lateral access along the shoreline?
- Is there lateral access along the structure?
- Is there visual access to the shoreline from inland?
- Is there visual access from the shoreline looking inland?
- Is there visual access along the shoreline?
- In summary, is a negative impact likely?



# Data Products

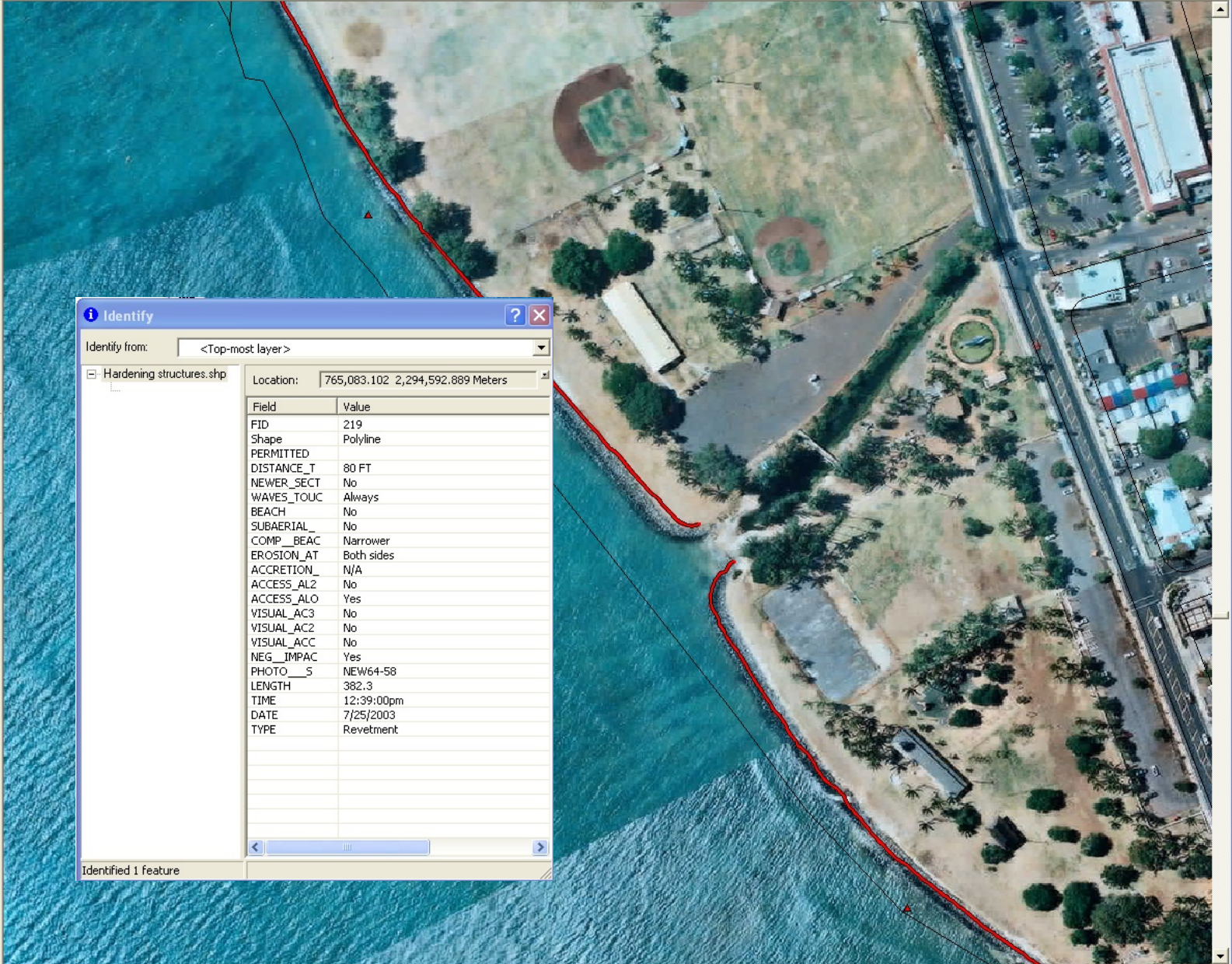
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- GIS layer for structures (lines)
- GIS layer for photo locations (points)
- Photos (jpegs)
- Data tables for structure impact assessments
- ArcMap project



**View1**

- Hardening structures.shp
- Picture.shp
- Clippedparcel.shp
- HalamaStreet.tif
  - RGB
  - Red: RedBand
  - Green: GreenBand
  - Blue: BlueBand



**Identify**

Identify from: <Top-most layer>

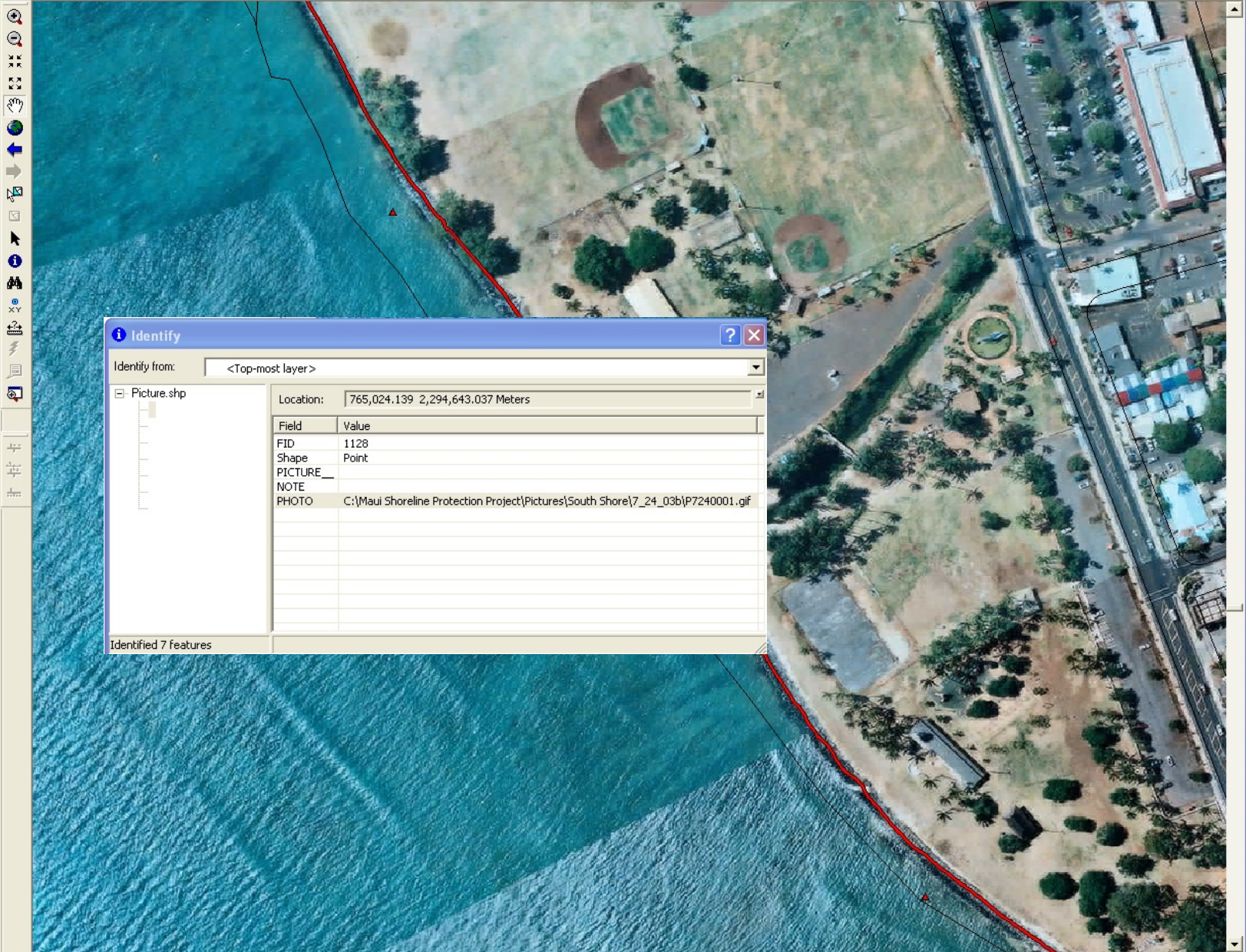
- Hardening structures.shp
  - Location: 765,083.102 2,294,592.889 Meters

Field	Value
FID	219
Shape	Polyline
PERMITTED	
DISTANCE_T	80 FT
NEWER_SECT	No
WAVES_TOUC	Always
BEACH	No
SUBAERIAL_	No
COMP_BEAC	Narrower
EROSION_AT	Both sides
ACCRETION_	N/A
ACCESS_AL2	No
ACCESS_ALO	Yes
VISUAL_AC3	No
VISUAL_AC2	No
VISUAL_ACC	No
NEG_IMPAC	Yes
PHOTO__5	NEW64-58
LENGTH	382.3
TIME	12:39:00pm
DATE	7/25/2003
TYPE	Revetment

Identified 1 feature

**View1**

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**Identify**

Identify from: <Top-most layer>

Picture.shp

Location: 765,024.139 2,294,643.037 Meters

Field	Value
FID	1128
Shape	Point
PICTURE_	
NOTE	
PHOTO	C:\Maui Shoreline Protection Project\Pictures\South Shore\7_24_03b\P7240001.gif

Identified 7 features

**View1**

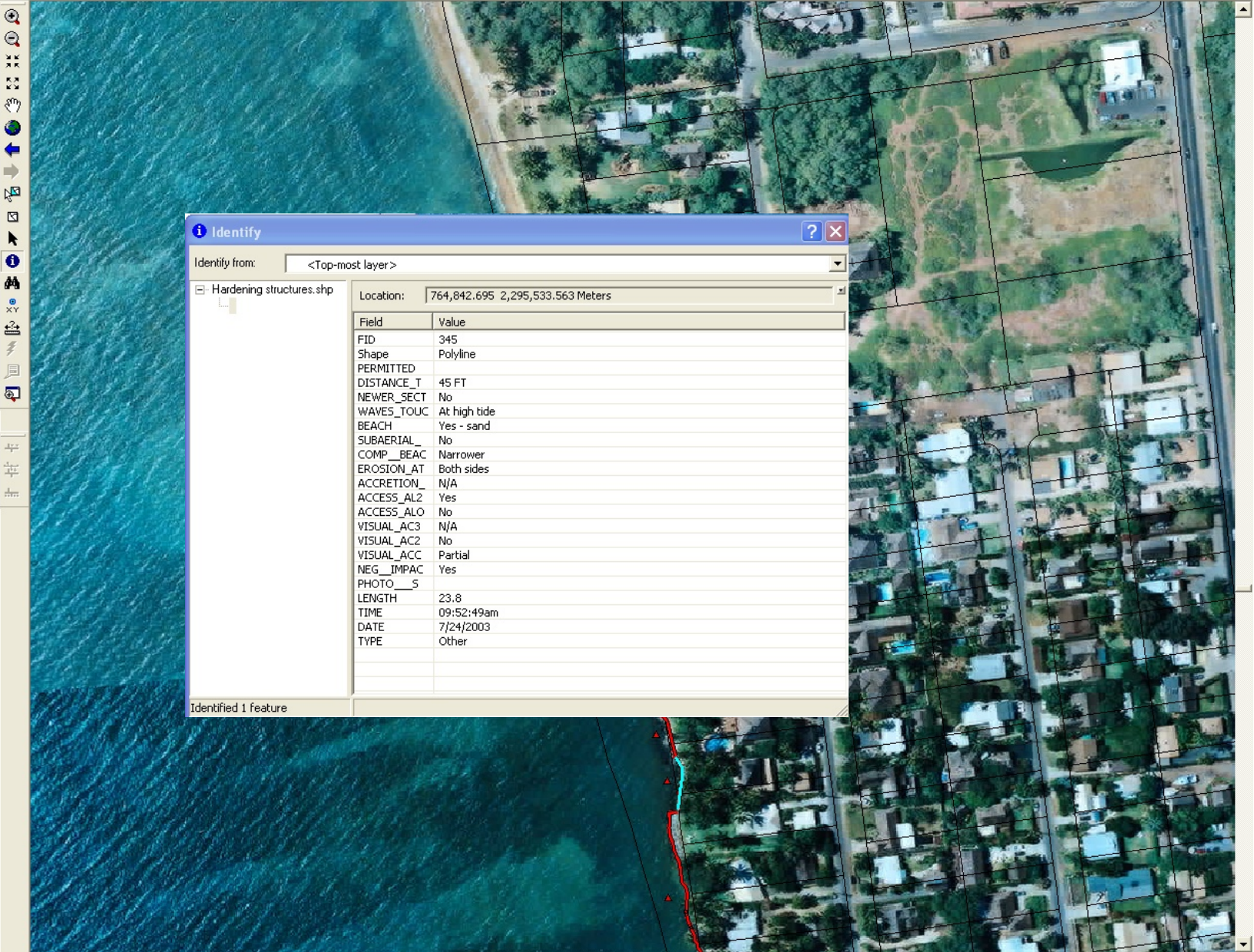
- Hardening structures.shp
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**Identify**

Identify from: <Top-most layer >

Hardening structures.shp

Location: 764,842.695 2,295,533.563 Meters

Field	Value
FID	345
Shape	Polyline
PERMITTED	
DISTANCE_T	45 FT
NEWER_SECT	No
WAVES_TOUC	At high tide
BEACH	Yes - sand
SUBAERIAL_	No
COMP_BEAC	Narrower
EROSION_AT	Both sides
ACCRETION_	N/A
ACCESS_AL2	Yes
ACCESS_ALO	No
VISUAL_AC3	N/A
VISUAL_AC2	No
VISUAL_ACC	Partial
NEG_IMPAC	Yes
PHOTO__S	
LENGTH	23.8
TIME	09:52:49am
DATE	7/24/2003
TYPE	Other

Identified 1 Feature

**View1**

- Hardening structures.shp
- Picture.shp
- Clippedparcel.shp
- HalamaStreet.tif

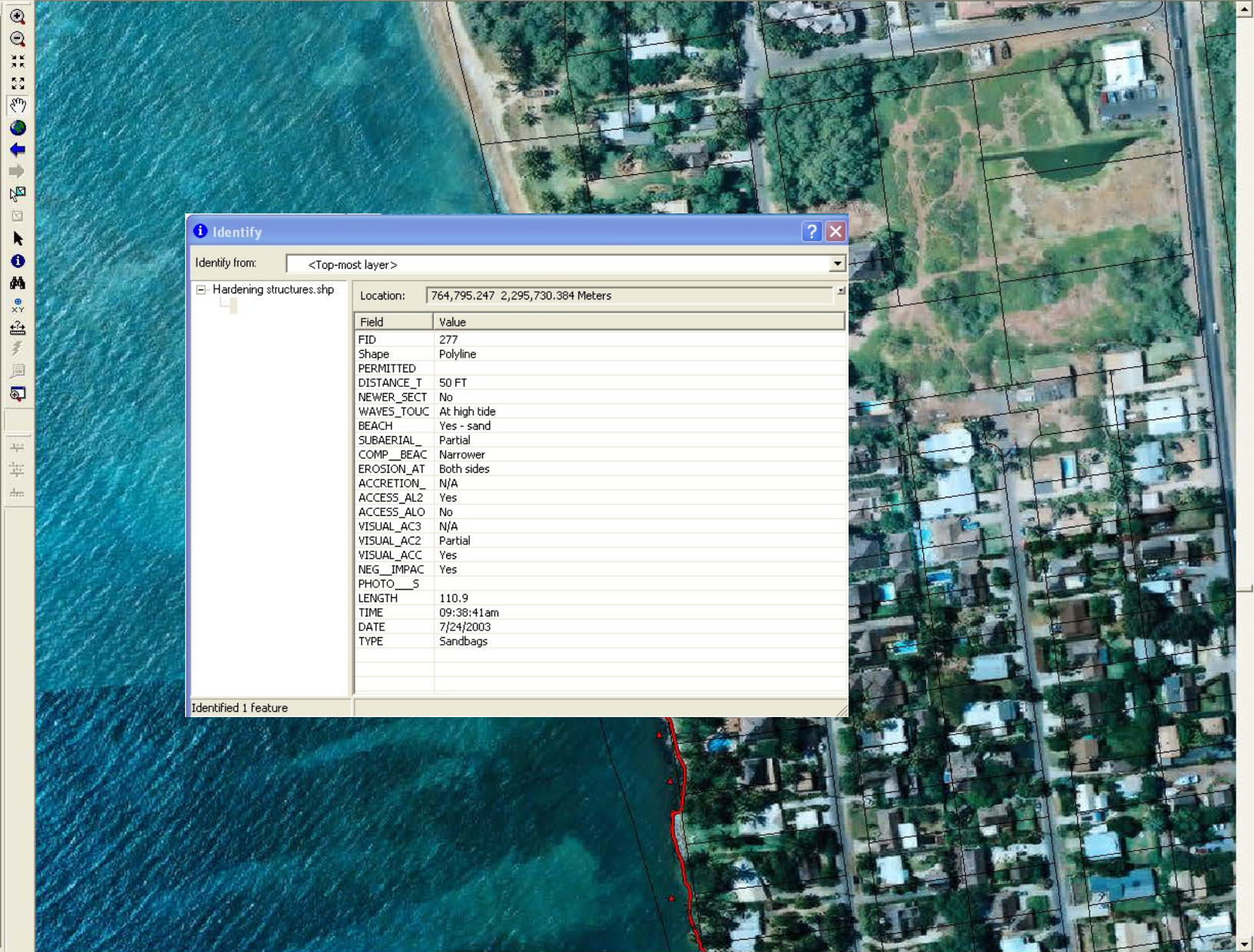
RGB

- Red: RedBand
- Green: GreenBand
- Blue: BlueBand



**View1**

- Hardening structures.shp
- Picture.shp
- Clippedparcel.shp
- HalamaStreet.tif
  - RGB
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  - Green: GreenBand
  - Blue: BlueBand



**Identify**

Identify from: <Top-most layer >

Hardening structures.shp

Location: 764,795.247 2,295,730.384 Meters

Field	Value
FID	277
Shape	Polyline
PERMITTED	
DISTANCE_T	50 FT
NEWER_SECT	No
WAVES_TOUC	At high tide
BEACH	Yes - sand
SUBAERIAL_	Partial
COMP_BEAC	Narrower
EROSION_AT	Both sides
ACCRETION_	N/A
ACCESS_AL2	Yes
ACCESS_AL0	No
VISUAL_AC3	N/A
VISUAL_AC2	Partial
VISUAL_ACC	Yes
NEG_IMPAC	Yes
PHOTO__S	
LENGTH	110.9
TIME	09:38:41am
DATE	7/24/2003
TYPE	Sandbags

Identified 1 feature

**View1**

- Hardening structures.shp
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  - RGB
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# Project Findings

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- 371 structures documented
- 56 miles of shoreline surveyed
- 15.6 miles (28%) hardened
- Impacts to coastal processes or public access:
  - Likely to have impacts: 10.4 miles (66%)
  - May have impacts: 2.3 miles (15%)
  - Not likely to have impacts: 1.1 miles (7%)
  - Not assessed (harbor breakwaters): 1.8 miles (12%)
- Permit history not documented



# Planners use my data for

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- County Plans
- General Plans
- Conservation District Use Permits
- Setbacks
- Shoreline Certification
- Shoreline Permits
- Building Permits
- Special Area Management Permits
- Flood Zones
- 



# Planners could also use my data for

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- Community Plans
- General Plans
- Conservation District Use Permits
- Setbacks
- Shoreline Certification
- Shoreline Permits
- Building Permits
- Special Area Management Permits
- Flood Zones
- 



# Million Dollar Questions

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- Is this data useful to planners as is?
- Would this data be more useful to planners if integrated into a web-based tool?
- Would this data be significantly more useful if the permit history of each structure was included?

